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PRELIMINARY ASSESSMENT/ VISUAL SITE INSPECTION

AMERICAN TELEPHONE AND TELEGRAPH COLUMBUS, OHIO OHD 004 282 703

FINAL REPORT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, DC 20460

Work Assignment No.	:	C05087
EPA Region	:	5
Site No.	:	OHD 004 282 703
Date Prepared	:	March 29, 1993
Contract No.	:	68-W9-0006
PRC No.	:	009-C05087OH6Z
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EXECUTIVE SUMMARY

PRC Environmental Management, Inc. (PRC), performed a preliminary assessment and visual site inspection (PA/VSI) to ntify and assess the existence and likelihood of releases from solid waste management units (SWMU) and other areas of concern (AOC) at the American Telephone and Telegraph (AT&T) facility located at 6200 East Broad Street in Columbus, Franklin County, Ohio. This summary highlights the results of the PA/VSI and the potential for releases of hazardous wastes or hazardous constituents from the SWMUs and AOC identified. In addition, a completed U.S. Environmental Protection Agency (EPA) Preliminary Assessment Form (EPA Form 2070-12) is included in Attachment A to assist in prioritizing RCRA facilities for corrective action.

The AT&T facility manufactures cellular telephone network switching systems as well as computer-based and data networking systems. It also manufactures and assembles electromechanical and electronic telephone switching equipment, including cross bar switching systems, electronic switching systems, small metal and plastic parts, and local cable network switching equipment. The following industrial processes are conducted at the facility: machining, degreasing, electroplating, wastewater treatment, circuit board assembling, soldering, painting, plastic injection molding, and painting. In the future, the AT&T facility plans to expand its production of cellular systems products and eliminate its production of more traditional switching systems that require plastic injection molding and electroplating operations. The facility plans to cease all electroplating, wastewater treatment, and plastic injection molding operations by the end of 1993.

The following waste streams are generated at the AT&T facility:

- Pretreated process wastewater
- Concentrated waste acid and sodium hydroxide
- Wastewater treatment sludge (F006)
- Waste chromic acid residue (D001, D002, and D007)
- Waste sodium hydroxide residue (D002 and D007)
- Waste zinc cyanide residue (F008)
- Zinc and copper plating filters (F008)
- Nickel chloride residue
- Waste solder dross (D008)
- Waste solder paste (D008)

- Waste alcohol (F003 and F005)
- Waste 1,1,1-trichloroethane (1,1,1-TCA) (F002)
- Waste butyl carbitol (F002)
- Trichloroethylene (TCE) still bottoms (F001)
- Waste paint (F005)
- Used oil
- Light ballasts containing polychlorinated biphenyls (PCB)

The facility has operated at its current location since 1959. The facility occupies 253 acres in a mixed-use area and employs about 6,200 people. The facility is currently regulated as a large-quantity generator of hazardous waste.

The facility filed a Part A permit application to operate as a storage facility. In November 1982, EPA approved closure of the facility's Original Container Storage Area (SWMU 19) and the Former Cyanide and Acid Waste Storage Area (SWMU 20). Closure of these units changed the facility's status to that of a generator only.

The PA/VSI identified the following 22 SWMUs and 1 AOC at the facility:

Solid Waste Management Units

1. Wastewater Pretreatment System
2. Concentrated Waste Tanks
3. Wastewater Treatment Sludge Roll-Off Box
4. Electroplating Collection Pits
5. Container Storage Area
6. Solder Dross Accumulation Area I
7. Solder Dross Accumulation Area II
8. Solder Dross Accumulation Area III
9. Solder Paste Accumulation Area
10. Flammable and Nonflammable Waste Accumulation Area
11. 1,1,1-TCA Vapor Cleaner Waste Accumulation Area
12. Freon Vapor Cleaner Waste Accumulation Area
13. 1,1,1-TCA Parts Washers Waste Accumulation Area
14. TCE Still and Still Bottoms Accumulation Area
15. Paint Waste Accumulation Area
16. Molding Machines Used Oil Accumulation Area
17. Boiler House Used Oil Accumulation Area
18. Tool Room Used Oil Accumulation Area
19. Original Container Storage Area
20. Former Cyanide and Acid Waste Storage Area
21. Former Waste Ammonia Etching Solution Tank

22. Former Waste Alcohol Evaporation Pond

Area of Concern

1. Ground-water Contamination

Ground-Water Contamination (AOC 1) has been documented at the AT&T facility. Ground-water samples collected in 1982, 1983, and 1984 from a collection drain that extends around the foundation of the boiler house, on-site monitoring wells, and standpipes used as wells confirmed the presence of 1,1,1-trichloroethane (1,1,1-TCA); trichloroethylene (TCE); and tetrachloroethylene (PCE) in the ground water. A Phase I and a Phase II hydrogeologic investigation conducted at the AT&T facility by Burgess and Niple (B&N) concluded that ground-water contamination beneath the AT&T facility was due to on-site sources. The Phase I hydrogeologic investigation report cited the facility's, underground pipelines, aboveground solvent pumps, and the Former Waste Alcohol Evaporation Pond (SWMU 22) as potential sources of contamination. The report also cited the facility's former underground storage tanks (UST) as a potential source of contamination. However, according to facility representative, Dale Howell, only No. 2 fuel oil was stored in USTs.

Five incidences of air permit exceedence were reported by AT&T to the Ohio Environmental Protection Agency (OEPA). These incidences occurred between December 1987 and October 1988. These five reported incidences resulted from the release of PCE from the facility in exceedence of permitted allowable limits. The OEPA Air Pollution Control Division has issued 25 operating air permits for machines used throughout the AT&T facility.

The potential for a release to on-site soils and ground water from the Former Waste Alcohol Evaporation Pond (SWMU 22) is high. SWMU 22 was located in the northern half of the facility, along the eastern property line. It consisted of a depression, about 15 feet in diameter, in an open field. Waste alcohol was disposed of in SWMU 22. This unit was used from 1959 until about 1978 and had no release controls. The past potential for a release to air from this unit was high. In addition, SWMU 22 was not lined. Although alcohol is very volatile; this unit had no release controls to prevent waste alcohol, or other constituents that may have been present in the waste alcohol, from migrating to on-site soils and ground water.

The potential for a release to surface water from the Former Waste Alcohol Evaporation Pond (SWMU 22) is low to moderate. If residual contamination exists in the on-site soils, the contaminants could potentially migrate to ground water and downgradient surface water bodies.

The potential for a release to ground water, surface water, on-site soils and air from the remaining SWMUs is low. All of the active SWMUs, except for the Container Storage Area (SWMU 5) and a portion of the Wastewater Pretreatment System (SWMU 1), are indoors. SWMU 1 is inspected annually and the flow in and out of this unit is constantly monitored. SWMU 5 is equipped with a collection trench and is surrounded by concrete curbing.

The nearest receptors to a release at the AT&T facility include AT&T's 6,200 employees. The nearest residence is about 0.25 mile south of the facility. Facility access is controlled by 24-hour security, and a 6-foot chainlink fence completely encloses the facility. Ground water is not a primary source of drinking water in the vicinity of the AT&T facility. The city of Columbus supplies water to the AT&T facility and nearby residences. This municipal water supply is obtained from three reservoirs, the closest of which is Hoover Reservoir located along Big Walnut Creek about 7 miles upstream of the AT&T facility.

The nearest surface water body, Blacklick Creek, is located about 0.5 mile east of the facility and is used for recreational purposes. A larger surface water body, also used for recreational purposes, is Big Walnut Creek located about 1 mile west of the facility. Sensitive environments are not located on-site. Gahana Woods is a wet meadow wetland consisting of shallow wet marshes and low trees located about two miles northeast of the facility. Gahana Woods is about 7 acres in size. Several smaller wetlands, between 1 and 2 acres in size, are located within 2 miles of the AT&T facility.

PRC recommends that soil samples be collected in the area of the Former Waste Alcohol Evaporation Pond (SWMU 22). These samples should be analyzed for volatile organic compounds (VOC). If soil contamination is detected, ground-water samples should also be collected and analyzed for VOCs.

PRC also recommends that ground-water samples be collected from the boiler house collection drain, six on-site monitoring wells, and two on-site stand pipes used as monitoring wells. These samples should also be analyzed for VOCs. If Ground-water Contamination

(AOC 1) is detected, soil sampling should be conducted around the boiler house to further define the source of the contamination and the extent of the contamination.

1.0 INTRODUCTION

PRC Environmental Management, Inc. (PRC), received Work Assignment No. C05087 from the U.S. Environmental Protection Agency (EPA) under Contract No. 68-W9-0006 (TES 9) to conduct preliminary assessments (PA) and visual site inspections (VSI) of hazardous waste treatment and storage facilities in Region 5.

As part of the EPA Region 5 Environmental Priorities Initiative, the RCRA and CERCLA programs are working together to identify and address RCRA facilities that have a high priority for corrective action using applicable RCRA and CERCLA authorities. The PA/VSI is the first step in the process of prioritizing facilities for corrective action. Through the PA/VSI process, enough information is obtained to characterize a facility's actual or potential releases to the environment from solid waste management units (SWMU) and areas of concern (AOC).

A SWMU is defined as any discernible unit at a RCRA facility in which solid wastes have been placed and from which hazardous constituents might migrate, regardless of whether the unit was intended to manage solid or hazardous waste.

The SWMU definition includes the following:

- RCRA-regulated units, such as container storage areas, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, and underground injection wells
- Closed and abandoned units
- Recycling units, wastewater treatment units, and other units that EPA has usually exempted from standards applicable to hazardous waste management units
- Areas contaminated by routine and systematic releases of wastes or hazardous constituents. Such areas might include a wood preservative drippage area, a loading or unloading area, or an area where solvent used to wash large parts has continually dripped onto soils.

An AOC is defined as any area where a release of hazardous waste or constituents to the environment has occurred or is suspected to have occurred on a nonroutine and nonsystematic basis. This includes any area where a strong possibility exists that such a release might occur in the future.

The purpose of the PA is as follows:

- Identify SWMUs and AOCs at the facility
- Obtain information on the operational history of the facility
- Obtain information on releases from any units at the facility
- Identify data gaps and other informational needs to be filled during the VSI

The PA generally includes review of all relevant documents and files located at state offices and at the EPA Region 5 office in Chicago.

The purpose of the VSI is as follows:

- Identify SWMUs and AOCs not discovered during the PA
- Identify releases not discovered during the PA
- Provide a specific description of the environmental setting
- Provide information on release pathways and the potential for releases to each medium
- Confirm information obtained during the PA regarding operations, SWMUs, AOCs, and releases

The VSI includes interviewing appropriate facility staff; inspecting the entire facility to identify all SWMUs and AOCs; photographing all visible SWMUs; identifying evidence of releases; making a preliminary selection of potential sampling parameters and locations, if needed; and obtaining additional information necessary to complete the PA/VSI report.

This report documents the results of a PA/VSI of the American Telephone and Telegraph (AT&T) facility (EPA Identification No. OHD 004 282 703) in Columbus, Ohio. The PA was completed on December 8, 1992. PRC gathered and reviewed information from the Ohio Environmental Protection Agency (OEPA) and from EPA Region 5 RCRA files. Information was also provided by the Federal Emergency Management Agency (FEMA) and U.S. Geological Survey (USGS) maps. The VSI was conducted on December 15 and 16, 1992. It included interviews with facility representatives and a walk-through inspection of the facility. PRC identified 22 SWMUs and 1 AOC at the facility.

PRC completed EPA Form 2070-12 using information gathered during the PA/VSI. This form is included in Attachment A. The VSI is summarized and 30 inspection photographs are included in Attachment B. Field notes from the VSI are included in Attachment C.

2.0 FACILITY DESCRIPTION

This section describes the facility's location; past and present operations; waste generating processes and waste management practices; a history of documented releases; regulatory history; environmental setting; and receptors.

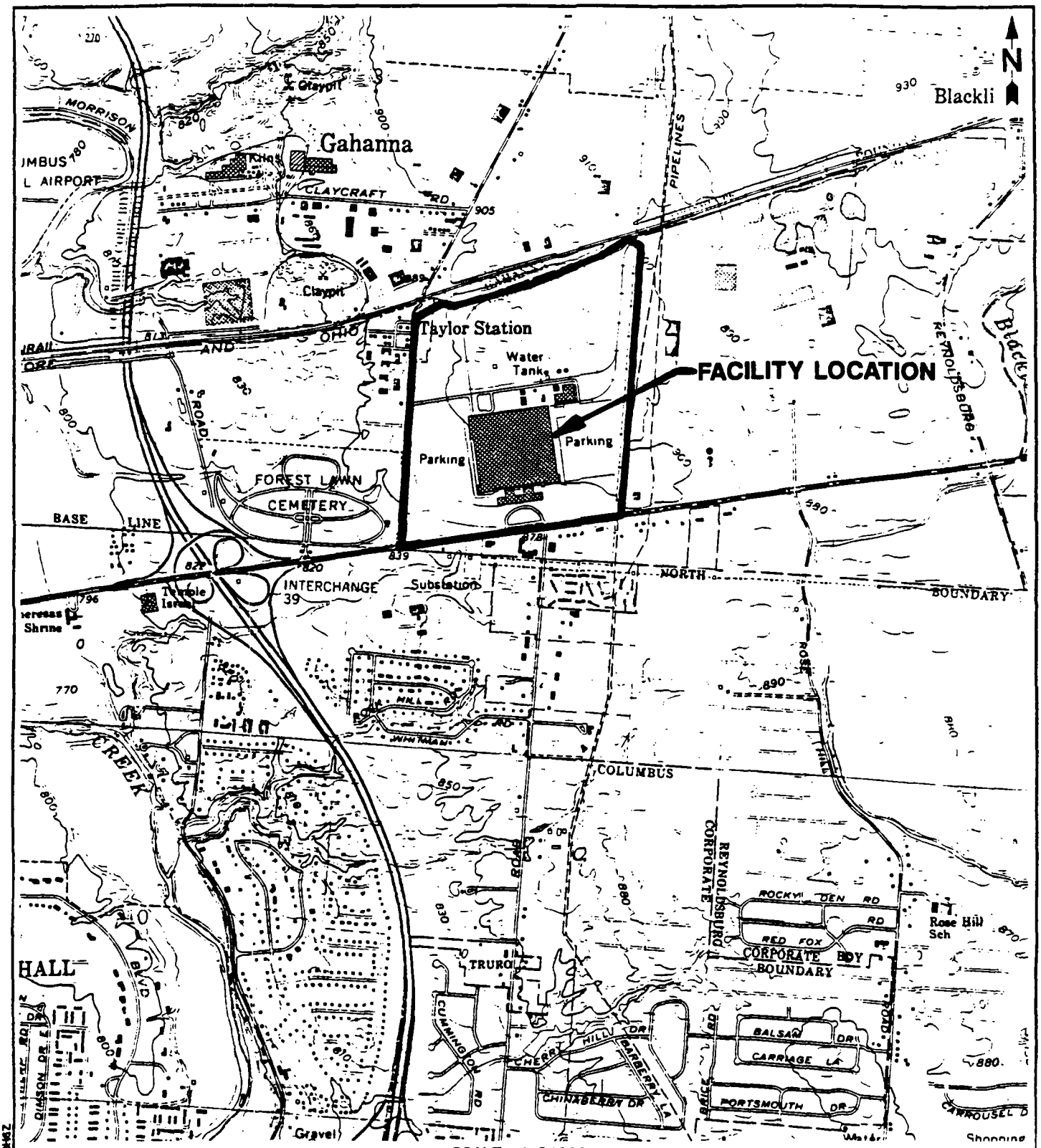
2.1 FACILITY LOCATION

The AT&T facility is located at 6200 East Broad Street in the city of Columbus, Franklin County, Ohio (latitude 39°38'30" N and longitude 82°50'16" W), as shown in Figure 1. The facility occupies 253 acres in a mixed-use area.

The AT&T facility is bordered on the northwest by the Bedford I Landfill, located about 0.5 mile from the facility, and the Bedford II Landfill, located about 1 mile from the facility; on the northeast by Columbus Steel Drums; on the east by an industrial complex consisting of various warehouses and an aluminum can manufacturing company; on the south by a commercial plaza and the Mount Carmel Medical Complex; and on the west by the Forest Lawn Cemetery.

2.2 FACILITY OPERATIONS

The facility has operated at its current location since 1959 and employs about 6,200 people. The AT&T facility manufactures cellular telephone network switching systems as well as computer-based and data networking systems. It also manufactures and assembles electromechanical and electronic telephone switching equipment, including cross bar switching systems, electronic switching systems, small metal and plastic parts, and local cable network switching equipment. The following industrial processes are conducted at the facility: machining, degreasing, electroplating, wastewater treatment, circuit board assembling, soldering, painting, plastic injection molding, and painting. In the future, the AT&T facility plans to expand its production of cellular systems products and eliminate its production of more traditional switching systems that require plastic injection molding and electroplating operations. The facility plans to cease all electroplating, wastewater treatment, and plastic injection molding operations by the end of 1993.



SCALE 1:24000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

SCALE: 1" = 2,000'

OHIO

QUADRANGLE LOCATION

AT&T
COLUMBUS, OHIO

FIGURE 1

FACILITY LOCATION

PRC ENVIRONMENTAL MANAGEMENT, INC.

SOURCE: MODIFIED FROM USGS, REYNOLDSBURG, OHIO QUADRANGLE, 1985

ATT-TECHLOWG - 01/07/93 - MLB 009-0050870462

All production processes take place in one main manufacturing building. However, there are other buildings on site, including a wastewater treatment building, a maintenance building, and a boiler house in which steam is generated for the plastic molding operations. The facility has several aboveground tanks located outdoors, including two 375,000-gallon steel tanks used to store No. 2 fuel oil and one 500,000-gallon steel tank used to store water obtained from the city of Columbus. A covered outdoor tank farm has two 15,000-gallon steel tanks that hold a solution of 20 percent sodium hydroxide, one 8,000-gallon fiberglass tank containing hydrochloric acid (HCl), and one 6,000-gallon steel tank containing trichloroethylene (TCE). These tanks were installed in 1988. According to the facility representative, Dale Howell, no underground storage tanks (UST) are currently located at the facility. The facility has two main parking lots on the southern half of the facility. An open field and a recreational area comprise the northern half of the facility property.

The facility has operated an on-site Wastewater Pretreatment System (SWMU 1) to treat electroplating wastes since facility operations began in 1959. Various chemicals, including chlorine and sulfur dioxide, are used during wastewater treatment. These chemicals are stored in the wastewater treatment building.

Prior to 1957, the property consisted of farmland. The Western Electric Company (Western Electric) purchased the property and began construction of the facility in 1957. Bell Telephone Laboratories (Bell Laboratories) joined Western Electric at the facility when operations began in 1959. In 1982, Western Electric was divided and facility ownership was assumed by AT&T Network Systems. In 1989, AT&T assumed ownership of the facility.

Since 1959, Bell Laboratories has conducted research for AT&T at the facility. From 1959 until 1990 Bell Laboratories used its own plating system to conduct electroplating research. Electroplating wastes generated by Bell Laboratories were managed in the Wastewater Pretreatment System (SWMU 1). In 1990, the electroplating system used by Bell Laboratories was removed by Chemical Waste Management. Bell Laboratories currently develops and tests computerized software for AT&T.

In the past, facility operations included copper and aluminum etching, and gold plating, which occurred during circuit board manufacturing. These operations began in 1968 and ceased in September 1986. Two gold platers, a nickel and chrome plater, and two zinc platers were removed from the facility in 1986. An inactive automatic nickel plater, which is still present at

the facility, was used until March 1991. From 1959 until June 1992, the facility also manufactured fuses.

2.3 WASTE GENERATION AND MANAGEMENT

This section describes the generation and management of wastes at the AT&T facility. The facility's SWMUs are identified in Table 1. The facility layout, including SWMUs and an AOC, is shown in Figures 2-A and 2-B. The facility's waste streams are summarized in Table 2.

The primary waste streams generated at the AT&T facility are TCE still bottoms (F001); waste 1,1,1-TCA (F002); pretreated process wastewater; wastewater treatment sludge (F006); concentrated waste acid and sodium hydroxide; waste chromic acid residue (D001, D002, and D007); waste sodium hydroxide residue (D002 and D007); waste zinc cyanide residue (F008); zinc and copper plating filters (F008); nickel chloride residue; waste solder dross (D008); waste solder paste (D008); waste alcohol (F003 and F005); waste paint (F005); waste butyl carbitol (F002); used oil; and light ballasts containing polychlorinated biphenyls (PCB). Annual generation rates presented in the following paragraphs are based on 1989 and 1991 waste generation data.

Punch presses are used at the facility to fabricate small metal parts. The metal parts are used as relays in the manufacture of switching systems. Punch press operations generate scrap metal, which is accumulated in 25 cubic yard roll-off boxes at the Container Storage Area (SWMU 5). The scrap metal is taken off site to local recycling centers.

After fabrication, metal relay parts are finished using barrel tumblers or an electrochemical grinding process. Relay parts are placed in barrel tumblers along with stones. Rough edges of metal relay parts are made smooth by repeated collisions with stones. Two electrochemical grinders are also used to finish metal relay parts. The grinders contain a salt solution. An electric current is run through the salt solution to grind the metal parts. Spent salt solution generated in the grinders is discharged to the Wastewater Pretreatment System (SWMU 1).

Following metal finishing operations, relay parts are cleaned using a 1,400-gallon trichloroethylene (TCE) vapor degreaser. Spent TCE is piped to the TCE Still and Still Bottoms Accumulation Area (SWMU 14) for recovery. Waste TCE still bottoms (F001) are piped from the still into the 550-gallon tank, and then pumped into the 55-gallon drum. When filled, the drum is taken from the TCE Still and Still Bottoms Accumulation Area (SWMU 14) to the Container

Storage Area (SWMU 5) for less than 90-day storage. The waste is transported off site to the Safety-Kleen Corporation (S-K) recycling facility in Hebron, Ohio. AT&T generates about 850 pounds of waste TCE still bottoms annually (AT&T, 1992b).

One vapor cleaner containing 1,1,1-TCA is also used to clean surface dirt from metal relay parts. Prior to July 1992, this unit contained freon; after July 1992, the unit contained 1,1,1-TCA (AT&T, 1992b). Waste 1,1,1-TCA (F002) from the vapor cleaner is accumulated in an adjacent 55-gallon drum. When full, the drum is moved from the 1,1,1-TCA Vapor Cleaner Waste Accumulation Area (SWMU 11) to the Container Storage Area (SWMU 5) for less than 90-day storage. The waste is transported off site to the S-K recycling facility in Hebron, Ohio. The facility generates about 5,800 gallons of waste 1,1,1-TCA annually (AT&T, 1992b).

After being cleaned, metal relay parts are electroplated using one of the following electroplating systems: a programmable hoist plater for copper-plating, nickel-plating, and zinc-plating; an automatic nickel and chrome plater; and an acid-tin barrel plater. The programmable hoist plater consists of 33 tanks containing various chemicals and solutions, including HCl; chrome rinses; copper and cyanide rinses; HCl and nitric acid rinses; nickel-, copper-cyanide-, and zinc cyanide-plating solutions; and sodium hydroxide rinsing solutions. The automatic nickel and chrome plater consists of nine tanks containing nickel and chrome plating solutions, sodium hydroxide cleaning solutions, nitric acid, and HCl. The acid-tin barrel plater consists of 10 tanks containing HCl, sulfuric acid, an HCl rinsing solution, a nitric and sulfuric acid mix, and a tin-plating solution.

Pre-masked circuit boards purchased by AT&T are also electroplated at the facility. The circuit boards are masked with a coating that allows metals to be electroplated to the circuit boards in specific patterns. Circuit boards are electroplated using one of the three systems discussed above.

Process wastewaters generated by electroplating operations are treated on site in the facility's Wastewater Pretreatment System (SWMU 1). The following three piping networks are used to continuously transfer wastewater from the electroplating systems to SWMU 1: the dilute acid and alkali (DAA) piping network, the dilute chromate rinse piping network, and the dilute cyanide rinse piping network.

Dilute acid and dilute sodium hydroxide rinses are continuously fed into the Wastewater Pretreatment System (SWMU 1) through the DAA piping network. Spent salt solution generated through electrochemical grinding is also discharged to SWMU 1 via the DAA piping network. All wastes carried through the DAA piping network are discharged to a 19,000-gallon acid and alkali surge tank at SWMU 1.

Dilute chromate rinses are carried through their own piping network and discharged to a 7,100-gallon chromate surge tank. The chromate rinses are then treated in a 5,000-gallon sulfur dioxide tank in the Wastewater Pretreatment System (SWMU 1), pumped to a 6,300-gallon tank adjacent to the chromate surge tank, and gradually fed into the acid and alkali surge tank. Dilute cyanide rinses are discharged from the cyanide piping network into a 12,000-gallon tank at SWMU 1. The cyanide rinses are then pumped to and treated in a 5,000-gallon chlorine tank in SWMU 1, and gradually fed into the acid and alkali surge tank.

Wastewater from the acid and alkali surge tank is neutralized using cationic and anionic polymers in a series of four tanks. Once neutralized, the wastes are pumped into a 140,000-gallon clarifier at SWMU 1. The 140,000-gallon clarifier replaced a 40,000-gallon clarifier in 1971. Once in the clarifier, particles flocculate and settle out, and sludge accumulates on the clarifier bottom. Wastewater is discharged from the clarifier to the city of Columbus sanitary sewer system and ultimately to the city of Columbus wastewater treatment facility. The Wastewater Pretreatment System (SWMU 1) treats and discharges approximately 75,000 gallons of wastewater per day.

About every 15 minutes, sludge is pumped from the bottom of the clarifier into a 20,000-gallon holding tank. From the holding tank, the sludge is pumped to a filter press that has a capacity of 2.1 cubic yards. Once in the filter press, excess water is squeezed out of the sludge and pumped back into the fourth neutralization tank of the Wastewater Pretreatment System (SWMU 1). Wastewater treatment sludge (F006) is dropped from the filter press into the Wastewater Treatment Sludge Roll-Off Box (SWMU 3). When full, this box is transported by Chemical Waste Management to the Adams Center Landfill in Fort Wayne, Indiana. The facility generates about 142 tons of F006 wastewater treatment sludge annually (AT&T, 1992a).

TABLE 1

SOLID WASTE MANAGEMENT UNITS

SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit[a]	Status
1	Wastewater Pretreatment System	No	Active
2	Concentrated Waste Tanks	No	Active
3	Wastewater Treatment Sludge Roll-Off Box	No	Active
4	Electroplating Collection Pits	No	Active
5	Container Storage Area	No	Active, less than 90-day storage area
6	Solder Dross Accumulation Area I	No	Active
7	Solder Dross Accumulation Area II	No	Active
8	Solder Dross Accumulation Area III	No	Active
9	Solder Paste Accumulation Area	No	Active
10	Flammable and Nonflammable Waste Accumulation Area	No	Active
11	1,1,1-TCA Vapor Cleaner Waste Accumulation Area	No	Active
12	Freon Vapor Cleaner Waste Accumulation Area	No	Active
13	1,1,1-TCA Parts Washers Waste Accumulation Area	No	Active

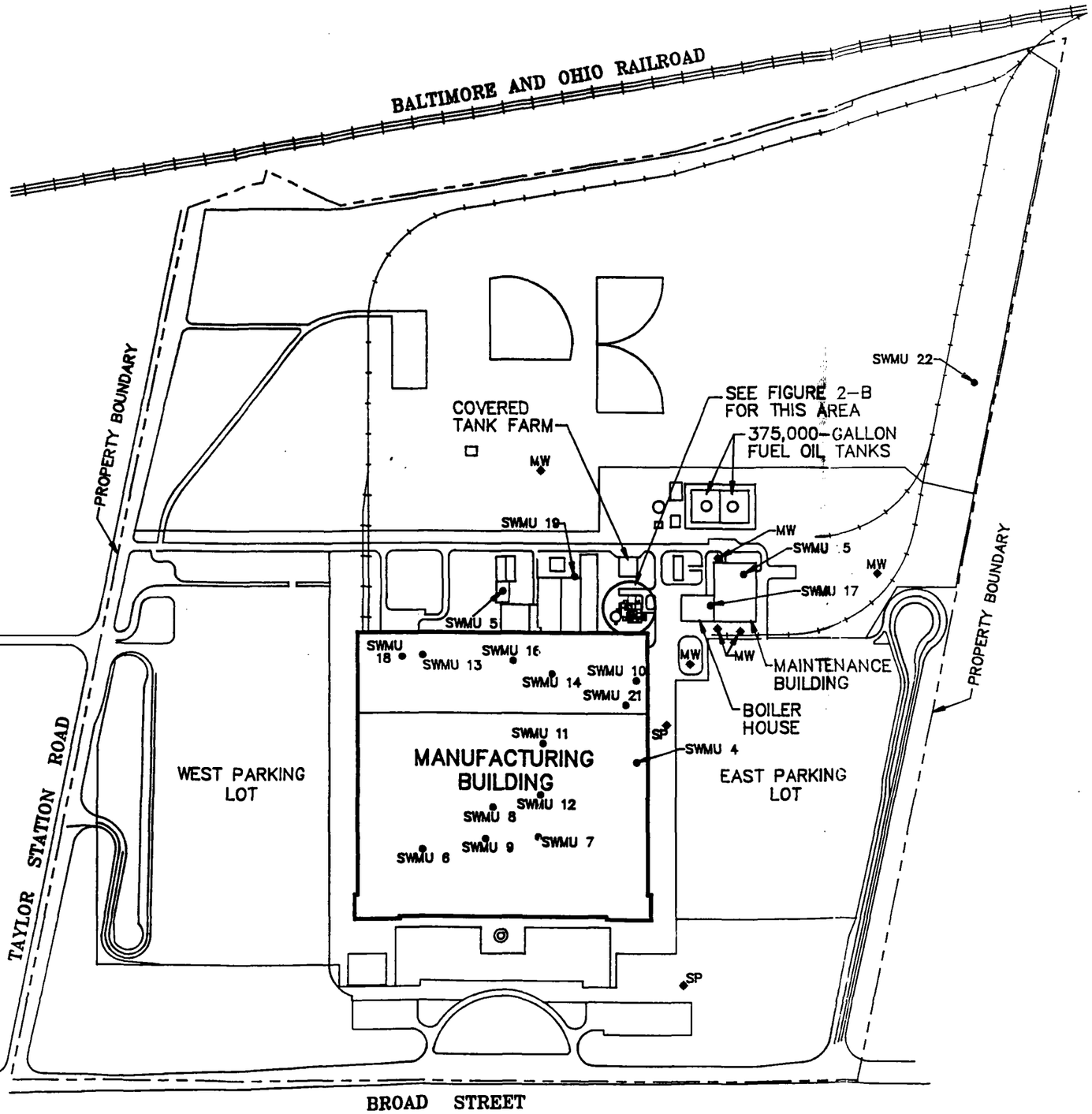
TABLE 1 (Continued)

SOLID WASTE MANAGEMENT UNITS

SWMU Number	SWMU Name	RCRA Hazardous Waste Management Unit[a]	Status
14	TCE Still and Still Bottoms Accumulation Area	No	Active
15	Paint Waste Accumulation Area	No	Active
16	Molding Machines Used Oil Accumulation Area	No	Active
17	Boiler House Used Oil Accumulation Area	No	Active
18	Tool Room Used Oil Accumulation Area	No	Active
19	Original Container Storage Area	Yes	Underwent RCRA closure in 1982, removed
20	Former Cyanide and Acid Waste Storage Area	Yes	Underwent RCRA closure in 1982, inactive
21	Former Waste Ammonia Etching Solution Tank	No	Inactive, removed
22	Former waste alcohol evaporation pond	No	Inactive

Note:

[a] A RCRA hazardous waste management unit is one that currently requires or formerly required submittal of a RCRA Part A or Part B permit application.



N

SOLID WASTE MANAGEMENT UNITS

SWMU 1 SEE FIGURE 2-B
SWMU 2 SEE FIGURE 2-B
SWMU 3 SEE FIGURE 2-B
SWMU 4 ELECTROPLATING COLLECTION PITS
SWMU 5 CONTAINER STORAGE AREA
SWMU 6 SOLDER DROSS ACCUMULATION AREA I
SWMU 7 SOLDER DROSS ACCUMULATION AREA II
SWMU 8 SOLDER DROSS ACCUMULATION AREA III
SWMU 9 SOLDER PASTE ACCUMULATION AREA
SWMU 10 FLAMMABLE AND NONFLAMMABLE WASTE ACCUMULATION AREA
SWMU 11 1,1,1-TCA VAPOR CLEANER WASTE ACCUMULATION AREA
SWMU 12 FREON VAPOR CLEANER WASTE ACCUMULATION AREA
SWMU 13 1,1,1-TCA PARTS WASHERS WASTE ACCUMULATION AREA
SWMU 14 TCE STILL AND STILL BOTTOMS ACCUMULATION AREA
SWMU 15 PAINT WASTE ACCUMULATION AREA
SWMU 16 MOLDING MACHINES USED OIL ACCUMULATION AREA
SWMU 17 BOILER HOUSE USED OIL ACCUMULATION AREA
SWMU 18 TOOL ROOM USED OIL ACCUMULATION AREA
SWMU 19 ORIGINAL CONTAINER STORAGE AREA
SWMU 20 SEE FIGURE 2-B
SWMU 21 FORMER WASTE AMMONIA ETCHING SOLUTION TANK
SWMU 22 FORMER WASTE ALCOHOL EVAPORATION POND

AREA OF CONCERN

AOC 1 GROUND-WATER CONTAMINATION

◆ MONITORING WELL LOCATION (MW)
⊕ STANDPIPE LOCATION (SP)

NOTE:
AOC 1 UNDERLIES AREA NEAR BOILER HOUSE.

SOURCE: MODIFIED FROM AN AT&T SKETCH RECEIVED BY PRC ON DECEMBER 16, 1992

NOT TO SCALE

AT&T
COLUMBUS, OHIO

FIGURE 2-A
FACILITY LAYOUT

PRC ENVIRONMENTAL MANAGEMENT, INC.

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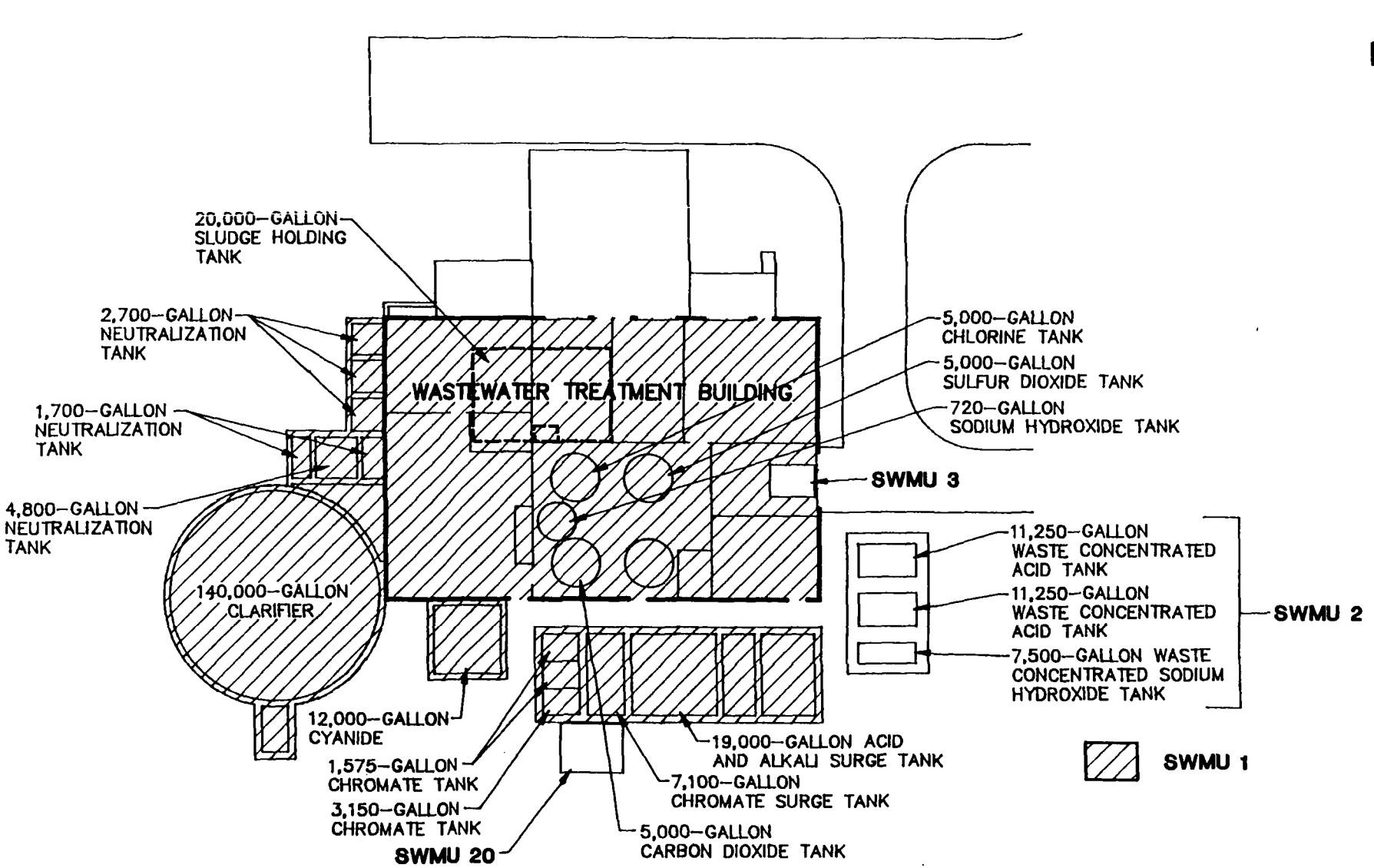

SOLID WASTE MANAGEMENT UNITS

SWMU 1 WASTEWATER PRETREATMENT SYSTEM
SWMU 2 CONCENTRATED WASTE TANKS
SWMU 3 WASTEWATER TREATMENT SLUDGE ROLL-OFF BOX
SWMU 20 FORMER CYANIDE AND ACID WASTE STORAGE AREA

SOURCE: MODIFIED FROM AN AT&T SKETCH RECEIVED BY PRC ON DECEMBER 16, 1992

NOT TO SCALE

AT&T
COLUMBUS, OHIO

FIGURE 2-B

FACILITY LAYOUT

PRC ENVIRONMENTAL MANAGEMENT, INC.

TABLE 2

SOLID WASTES

Waste/EPA Waste Code[a]	Source	Solid Waste Management Unit[b, c]
Present Wastes		
Scrap Metal/NA	Fabricating metal parts	5
Spent salt solution/NA	Electrochemical grinding	1
TCE still bottoms/F001	Vapor degreasing of metal parts and TCE recovery	5, 14, and 19
Waste 1,1,1-TCA/F002	Vapor cleaning of circuit boards, stamp cleaning, grinder cleaning, and soldering	5, 8, 10, 11, 13, and 19
Pretreated process wastewater/NA	Electroplating and electrochemical grinding	1
Concentrated waste acid and sodium hydroxide/NA	Electroplating	2
Wastewater treatment sludge/F006	Wastewater treatment	3
Waste chromic acid residue/D001, D002, and D007	Cleaning of Electroplating Collection Pits (SWMU 4) and electroplating tanks	4, 5, and 20
Waste sodium hydroxide residue/D002 and D007	Cleaning of Electroplating Collection Pits (SWMU 4) and electroplating tanks	4, 5, and 19
Waste zinc cyanide residue/F008	Cleaning of Electroplating Collection Pits (SWMU 4) and electroplating tanks	4, 5, and 20

TABLE 2 (Continued)

SOLID WASTES

Waste/EPA Waste Code[a]	Source	Solid Waste Management Unit[b, c]
Zinc and copper plating filters/F008	Maintenance of zinc and copper plating tanks	5
Nickel chloride residue/[c]	Cleaning of Electro-plating Collection Pits (SWMU 4) and electroplating tanks	4 and 5
Waste solder dross/D008	Wave soldering	5, 6, 7, and 8
Waste solder paste/D008	Paste soldering	5 and 9
Waste alcohol/F003 and F005	Soldering, hand cleaning of metal parts, and fuse production	5, 10, 19, and 22
Waste paint/F005	Miscellaneous painting	5, 15, and 19
Waste butyl carbitol/F002	Stamp cleaning	5 and 10
Used oil/NA	Equipment maintenance	5, 16, 17, 18, and 19
Light ballasts containing PCBs/[b]	Removal of light ballasts throughout facility	5

TABLE 2 (Continued)

SOLID WASTES

Waste/EPA Waste Code[a]	Source	Solid Waste Management Unit[b, c]
Past Wastes		
Waste ammonia etching solution/D002	Manufacturing of circuit boards	20
Waste tetrachloroethylene (PCE)/F002	Soldering	5, 8, and 19
Waste freon/F001	Vapor cleaning of circuit boards, stamp cleaning, and hand soldering	5, 8, and 19
Waste MARKEM 320/F005	Stamp cleaning	5 and 10
Waste xylene/F003	Miscellaneous painting	5, 15, and 19

Notes:

[a] Not applicable (NA) designates nonhazardous waste.

[b] This waste is regulated under the Toxic Substance Control Act (TSCA).

[c] EPA has not assigned a hazardous waste code to this waste.

Two additional piping networks are used to transfer highly concentrated wastes into the Wastewater Pretreatment System (SWMU 1). Concentrated wastes are generated when the various electroplating tanks are emptied. The electroplating tanks are randomly emptied about every 3 months. In addition, all the tanks containing concentrated solutions are emptied during the facility's annual tank cleaning and inspection. Concentrated caustic acid wastes are piped into two 11,250-gallon holding tanks near SWMU 1. Concentrated wastes containing sodium hydroxide are piped into a 7,500-gallon holding tank. From these Concentrated Waste Tanks (SWMU 2), the concentrated wastes are slowly fed into SWMU 1. These wastes are fed at a rate of about 0.5 gallon per day. About 39,000 gallons of concentrated acid wastes and 13,000 gallons of concentrated alkali wastes are generated annually (PRC, 1993b).

All the tanks included in the three electroplating systems have pits below them to collect spillage. The Electroplating Collection Pits (SWMU 4) are equipped with automatic pumping systems that pump wastes to the Wastewater Pretreatment System (SWMU 1) via the DAA and the dilute chromate and dilute cyanide piping networks. SWMU 4 is cleaned annually.

About 1,200 pounds of waste chromic acid residue (D001, D002, and D007); 3,500 pounds of waste sodium hydroxide residue (D002 and D007); and 1,500 pounds of nonhazardous waste nickel chloride residue are generated during the annual cleaning of the Electroplating Collection Pits (SWMU 4) and the electroplating tanks. These wastes are drummed, stored in the Container Storage Area (SWMU 5) for less than 90 days, and transported to Heritage Environmental Services in Indianapolis, Indiana, for recycling (AT&T, 1990 and 1992a).

About 2,000 pounds of waste zinc cyanide residue (F008) is generated annually at the AT&T facility. This waste is generated during the annual cleaning of the Electroplating Collection Pits (SWMU 4) and the electroplating tanks, and the maintenance of the zinc and copper plating tanks. Maintenance of these tanks involves the periodic replacement of filters that are used continuously during zinc and copper plating. About three drums of zinc and copper plating filters (F008) are generated annually. These wastes are drummed, stored in the Container Storage Area (SWMU 5) for less than 90 days, and transported to Heritage Environmental Services in Indianapolis, Indiana, for recycling (AT&T, 1990 and 1992a).

Following electroplating operations, resistors and diodes are inserted onto circuit boards. These components are permanently attached to the circuit boards by soldering. Soldering operations are conducted at the facility both by hand and by machine. Hand soldering operations began in 1959. Machine operations include wave soldering and paste soldering. Wave soldering

began in about 1977 and paste soldering began in 1991. Isopropyl alcohol is applied as a flux onto circuit boards prior to soldering operations.

During wave soldering, which involves a spray application of flux, waste solder dross (D008) is skimmed from the top of the solder pots. These pots contain an oxidized tin and lead solder flux. The facility utilizes three wave soldering machines. Two of these machines are used during cellular systems production, and the third is used during network systems production. Waste solder dross is accumulated in containers located adjacent to the wave soldering machines. Wastes managed in Solder Dross Accumulation Area I (SWMU 6) are accumulated in a 1-gallon tin bucket. When filled, the bucket is emptied into a 55-gallon drum that is periodically located adjacent to the bucket. If a 55-gallon drum is not located in SWMU 6, the wastes are transferred to a 55-gallon drum in Solder Dross Accumulation Area II (SWMU 7) or Solder Dross Accumulation Area III (SWMU 8).

Solder Dross Accumulation Area II (SWMU 7) is located adjacent to a wave soldering machine used for cellular systems production. SWMU 7 consists of a 1-gallon tin bucket and a 55-gallon steel drum. Solder Dross Accumulation Area III (SWMU 8) is located adjacent to a wave soldering machine used for network systems production. SWMU 8 consists of two 1-gallon tin buckets and a 55-gallon steel drum. Waste solder dross accumulated in SWMU 6, SWMU 7, and SWMU 8 is transferred to the Container Storage Area (SWMU 5) for less than 90-day storage.

Soldering operations are also conducted using machines that apply solder flux as a paste. The facility uses five solder paste machines that brush solder flux onto the exposed surface of the circuit boards. Waste excess solder paste (D008) that accumulates around the circuit boards is disposed of in a 55-gallon drum adjacent to the solder paste machines. Wastes accumulated in the Solder Paste Accumulation Area (SWMU 9) are also transferred to the Container Storage Area (SWMU 5) for less than 90-day storage.

Currently, solder dross and solder paste are transported off site as D008 hazardous waste. These wastes are transported to the ECS Refining Company in Santa Clara, California. The AT&T facility generated about 6,600 pounds of solder waste in 1991 (AT&T, 1992a). Prior to 1991, solder wastes generated were not regulated as hazardous waste and were transported off site for recycling.

Waste alcohol (F003 and F005) is also generated during soldering operations. After several uses, waste alcohol flux becomes unusable and is disposed of as F003 waste. Waste alcohol is

accumulated in 1-gallon buckets adjacent to the soldering machines and is transferred to a 55-gallon drum used to store miscellaneous flammable wastes located in the Flammable and Nonflammable Waste Accumulation Area (SWMU 10). SWMU 10 is located in an oil storage room and contains one 55-gallon drum used to accumulate flammable wastes and one 55-gallon drum used to accumulate nonflammable wastes. When filled, the drum is moved from SWMU 10 into the Container Storage Area (SWMU 5) for less than 90-day storage. Waste alcohol (F003) was disposed of in the Former Waste Alcohol Evaporation Pond (SWMU 22) until about 1978.

Waste alcohol (F003 and F005) is also generated during hand cleaning of metal relay parts prior to and after hand soldering. Hand cleaning consists of scrubbing metal relay parts in a 1-gallon bucket containing isopropyl alcohol, methanol, or ethanol. Hand cleaning operations are conducted at three locations throughout the AT&T facility (PRC, 1993b). The F003 and F005 wastes are transferred from 1-gallon buckets to a 55-gallon drum in the Flammable and Nonflammable Waste Accumulation Area (SWMU 10). When filled, the drum is transferred from SWMU 10 to the Container Storage Area (SWMU 5) for less than 90-day storage. These wastes are transported off site to the Safety-Kleen Corporation (S-K) recycling center in New Castle, Kentucky. The facility generates 11,100 pounds of F003 and F005 waste annually (AT&T, 1992b).

After various components have been soldered onto the circuit boards, wires are attached. Metal relays are tested using electric currents, and are combined to form switches. Circuit boards and switches are assembled together to form switching systems.

Small plastic and nylon parts are used in the final assembly of circuit boards. These small parts are manufactured at the facility using injection molding machines. Heat is applied to plastic and nylon to make the materials malleable. The materials are injected into molds to form various parts. Nylon wastes generated during this process are taken off site for recycling. Plastic wastes are disposed of in a dumpster along with other nonhazardous wastes, and taken to a municipal landfill.

AT&T also manufactures cabinets to contain switching systems. The cabinets are electrically programmed so AT&T customers can test switching systems purchased from AT&T. These cabinets are painted in a paint booth located in the maintenance building. Toluene is used as a paint thinner. Waste paint containing toluene (F005) is accumulated in a 55-gallon drum near the paint booth. When filled, the drum is moved from the Paint Waste Accumulation Area (SWMU 15) to the Container Storage Area (SWMU 5) for less than 90-day storage. Waste paint

containing toluene is transported as a mixed flammable waste along with waste alcohol to the S-K recycling facility in New Castle, Kentucky. The facility generates about 2,300 pounds of F005 waste paint annually (AT&T, 1992b).

Stamps are used to date items as they are manufactured. These stamps apply ink codes onto finished products and are cleaned in 1-gallon buckets. These buckets are filled with either 1,1,1-TCA or a cleaning compound called butyl carbitol, which consists primarily of ethanol. The facility is currently switching from using 1,1,1-TCA to using butyl carbitol during stamp cleaning operations. Stamp cleaning is conducted at about 15 locations throughout the AT&T facility.

Waste butyl carbitol (F002) is transferred from 1-gallon buckets to a 55-gallon drum in the Flammable and Nonflammable Waste Accumulation Area (SWMU 10). When filled, the drum is transferred from SWMU 10 to the Container Storage Area (SWMU 5) for less than 90-day storage. These wastes are transported off site to the S-K recycling center in New Castle, Kentucky. The facility generates about 550 pounds of F002 waste annually (AT&T, 1992b).

The facility uses two parts washers that contain 1,1,1-TCA. These washers are used to clean metal grinders that are used in milling machines. The washers each contain about 12 gallons of 1,1,1-TCA. Waste 1,1,1-TCA (F002) is pumped into an adjacent 55-gallon drum. When filled, the drum is taken from the 1,1,1-TCA Parts Washers Waste Accumulation Area (SWMU 13) to the Container Storage Area (SWMU 5) for less than 90-day storage. The waste is then taken to the S-K recycling facility in Hebron, Ohio. AT&T generates 5,800 pounds of waste 1,1,1-TCA annually (AT&T, 1992b).

Used oil is generated during equipment maintenance. Used oil is accumulated in one of three areas before it is moved to the Container Storage Area (SWMU 5) for storage. The Molding Machines Used Oil Accumulation Area (SWMU 16) is used to accumulate used oil generated during the maintenance of injection molding machines. The Boiler House Used Oil Accumulation Area (SWMU 17), which is located in the boiler house, is used to accumulate used oil generated during the maintenance of air compressors. The Tool Room Used Oil Accumulation Area (SWMU 18), which is located in the tool room, is used to accumulate used oil generated during the maintenance of drilling machines. Used oil is moved from SWMUs 16, 17, and 18 to SWMU 5 for storage. Used oil is ultimately taken off site to the S-K recycling facility in New Castle, Kentucky, for fuel blending. The AT&T facility generates about 29,000 pounds of used oil annually (AT&T, 1992b).

The AT&T facility is currently removing light ballasts from overhead lights at the facility. These ballasts contain PCBs. The ballasts are placed in 55-gallon drums and is stored in the Container Storage Area (SWMU 5) for less than 90 days. The PCB material is transported off site to Salesco Systems in Phoenix, Arizona. The AT&T facility generates 10,800 pounds of waste PCB light ballasts annually (AT&T, 1992b).

The facility has used two areas for the container storage of hazardous waste. The Original Container Storage Area (SWMU 19) was used to store hazardous waste and nonhazardous used oil in 55-gallon drums. SWMU 19 was used to store these wastes from 1959 until 1982. The Former Cyanide and Acid Waste Storage Area (SWMU 20) was used to store cyanide and acid waste in 55-gallon drums from 1959 until about 1985. Both of these units were used to store wastes for greater than 90 days. Both units underwent RCRA closure in 1982 (EPA, 1982). After these units were closed, SWMU 19 became inactive and SWMU 20 was used until 1985 to store wastes for less than 90 days. SWMU 20 has been inactive since 1985.

Past wastes generated at the AT&T facility include waste ammonia etching solution (D002), waste tetrachloroethylene (PCE) (F002), waste freon (F001), waste MARKEM 320 (F005), and waste xylene (F003). As discussed earlier, past facility operations included copper and aluminum etching, and gold plating associated with manufacturing of circuit boards. An ammonia etching solution was used in these operations. The facility formerly had one 8,000-gallon fiberglass tank that contained virgin solution and one 8,000-gallon fiberglass tank that contained waste ammonia etching solution. These tanks were located in the northeast section of the manufacturing building. The Former Waste Ammonia Etching Solution Tank (SWMU 21) was used to store waste ammonia etching solution (D002) for less than 90 days before the waste was transported off site for disposal.

Fuses were manufactured at the facility from 1959 until June 1992. A 250-gallon steel tank containing alcohol was used during fuse manufacturing. According to Mr. Howell, when the alcohol became unusable, the tank contents were disposed of in the Former Waste Alcohol Evaporation Pond (SWMU 22). The tank was emptied into SWMU 22 about twice a year. According to Mr. Howell, SWMU 22 was used until about 1978 and only managed waste alcohol (F003) from fuse manufacturing. The facility discharged waste alcohol (F003) directly to the city of Columbus sanitary sewer from 1978 until about 1982. The facility has stored all waste alcohol in 55-gallon drums since 1982 (PRC, 1993b).

The facility formerly used rosin in soldering operations. Rosin was applied to circuit boards prior to soldering operations. After soldering, excess rosin was removed from the circuit boards using cleaning solvents. PCE and 1,1,1-TCA were used to remove excess rosin after machine soldering, and freon was used to clean circuit boards after hand soldering. Freon and PCE were used in soldering operations until about 1990, and 1,1,1-TCA was used until 1992. Seven soldering machines were located in the network systems production area. Waste solvents generated by the soldering operations in this area were accumulated in 55-gallon drums located in Solder Dross Accumulation Area III (SWMU 8) (AT&T, 1993). When filled, drums containing waste PCE (F002) or waste 1,1,1-TCA were taken to the Container Storage Area (SWMU 5) for less than 90-day storage and ultimately transported off site to the S-K recycling facility in Hebron, Ohio.

Freon and a cleaning compound called MARKEM 320, which consists of isopropyl alcohol and ethyl acetate, were used during stamp cleaning. Nonflammable waste freon (F002) and flammable waste MARKEM 320 (F005) were accumulated in the Flammable and Nonflammable Waste Accumulation Area (SWMU 10) and transferred to the Container Storage Area (SWMU 5) for less than 90-day storage. These wastes were ultimately transported off site to the S-K recycling facility in New Castle, Kentucky.

The AT&T facility used freon in vapor cleaners. According to Mr. Howell, seven such cleaners were used to clean surface dirt and flux from circuit boards after soldering. Two of these cleaners are still present at the facility. One of these vapor cleaners was installed in May 1980 and removed from service on December 18, 1992 (AT&T, 1992b). Waste freon generated during vapor cleaning was accumulated in 55-gallon drums adjacent to the vapor cleaners and transferred to the Container Storage Area (SWMU 5) for less than 90-day storage. Prior to 1982, waste freon was stored in the Original Container Storage Area (SWMU 19). As discussed earlier, the other active vapor cleaner was converted from freon to 1,1,1-TCA in July 1992.

Waste freon (F001) generated by the vapor cleaner that became inactive on December 18, 1992, was accumulated in an adjacent 55-gallon drum. When filled, the drum was moved from the Freon Vapor Cleaner Waste Accumulation Area (SWMU 12) to the Container Storage Area (SWMU 5) for less than 90-day storage. Waste freon was transported off site along with waste 1,1,1-TCA to the S-K recycling center in Hebron, Ohio. The facility generated 8,500 pounds of waste freon in 1991 (AT&T, 1992a).

Waste xylene (F003) was generated at the facility during miscellaneous painting operations conducted in the paint booth. Xylene was used as a paint thinner and to clean paint guns used in the paint booth located in the maintenance building. Waste xylene was accumulated in a 55-gallon drum in the Paint Waste Accumulation Area (SWMU 15). When filled, the drum was moved to the Container Storage Area (SWMU 5) for less than 90-day storage. Prior to 1982, the waste was stored in the Original Container Storage Area (SWMU 19).

2.4 HISTORY OF DOCUMENTED RELEASES

This section discusses the history of documented releases to ground water, surface water, air, and on-site soils at the AT&T facility.

In 1983, a Phase I hydrogeologic investigation was conducted by Burgess and Niple, Ltd. (B&N) in response to a release of 1,1,1-TCA; TCE; and PCE. In April 1986, OEPA inspected the AT&T facility as a follow-up visit to a spill incident report (OEPA, 1986). Reportedly, the release occurred in an underground trench that contained metal pipes used to carry the solvents. This trench also contained polyvinyl chloride (PVC) pipes used to carry acid, and steam lines. The report did not state what the steam pipes were constructed of. Steam caused the PVC pipes to warp and break, allowing acid to erode the metal pipes carrying the solvents (OEPA, 1986). The report did not state when the release took place, the location of the trench, the amount of solvents released, or the amount and type of acid that was released.

The Phase I hydrogeologic investigation report stated that 1,1,1-TCA; TCE; and PCE were detected in ground-water samples collected from a collection drain in late 1982. This drain extends around the foundation of the boiler house. TCE and 1,1,1-TCA were also detected in ground-water samples collected from a standpipe that was used as an on-site monitoring well (B&N, 1983).

B&N's report concluded that the ground-water contamination beneath the AT&T facility was caused by on-site sources. The report also noted that the vinyl chloride and toluene identified in ground-water samples collected from the boiler house collection drain were not associated with chlorinated solvents used at the AT&T facility. The report cited the facility's USTs, underground pipelines, aboveground solvent pump, and the Former Waste Alcohol Evaporation Pond (SWMU 22) as potential sources of contamination. The report states that the AT&T facility stored chemicals and oil in USTs. The report does not state the number of USTs at the facility, the size of the USTs, or the type of chemicals stored in the USTs (B&N, 1983).

According to Mr. Howell, the trench in which this release occurred was located along the driveway between the boiler house and the wastewater treatment facility. He stated that underground piping was formerly used to transfer 1,1,1-TCA; TCE; and PCE from aboveground tanks into the manufacturing building. According to Mr. Howell, No. 2 fuel oil was the only material stored in USTs, and 1,1,1-TCA; TCE; and PCE were stored in aboveground tanks (PRC, 1993b). He also stated that all underground piping used to transfer these chemicals were removed and replaced with aboveground piping in about 1960 (PRC, 1993b).

As a result of the Phase I hydrogeologic investigation, six monitoring wells and two stand pipes were installed to characterize the extent of contamination. Ground-water sampling confirmed the presence of 1,1,1-TCA; TCE; and PCE in ground water collected from the boiler house collection drain and in a monitoring well located near the solvent storage tanks. The Phase II hydrogeologic investigation report concluded that ground water in the bedrock aquifer beneath the facility was contaminated by solvents released from the solvent storage tanks and unloading areas (B&N, 1986). The ground-water sampling results are shown in Attachment D. No available information indicates that AT&T proposed a plan to remediate the contamination, or that OEPA required AT&T to do so.

The boiler house collection drain mentioned in B&N's reports is a pit that is about 12 feet below the building's basement floor (PRC, 1993b). The drain is used to collect ground water that is then drained into a sump. A pump then discharges the water directly into the city of Columbus sanitary sewer system, thereby lowering the ground-water table around the building's foundation. According to Mr. Howell, AT&T collects ground-water samples from the drain biannually and analyzes them for TCE; PCE; and 1,1,1-TCA. AT&T is not required to and does not report the analytical results to OEPA (PRC, 1993b).

A 12,000-gallon and a 3,000-gallon UST were removed from the facility in 1988. These tanks were constructed of steel and contained No. 2 fuel oil. According to Mr. Howell, a fuel oil release was detected when the tanks were removed. Because of this release, OEPA required that AT&T remove approximately 40 cubic yards of oil-contaminated soil from around the tanks. No available information documents whether confirmatory soil samples were collected, or whether all contaminated soil was removed.

During an OEPA inspection in February 1991, the facility was cited for storing F006 wastewater treatment sludge in two outdoor roll-off boxes that were not well contained (OEPA, 1991c). Soil sampling conducted near the two roll-off boxes identified the presence of nickel and

chromium in concentrations above background levels, thus indicating a release of F006 wastewater treatment sludge to the underlying soils (OEPA, 1992a). AT&T removed contaminated soil from the eastern edge of the wastewater treatment building and along a driveway that runs past the maintenance building located east of the wastewater treatment building. Available information does not indicate how much contaminated sold was removed. In July 1992, OEPA determined that the soil removal adequately remediated the soil contamination associated with the F006 wastewater treatment sludge release (OEPA, 1992b).

It should be noted that Columbus Steel Drums, located northeast of the AT&T facility, is currently involved in corrective action procedures with OEPA in response to ground-water contamination at its facility. The ground-water contamination was due to a release of paint containing toluene and possibly xylene (PRC, 1993e). However, B&N's 1983 hydrogeologic investigation report states that because of the isolated nature of the land surface at the AT&T facility, and the presence of impervious shale in the area, the potential for ground-water contamination migrating from Columbus Steel Drums to the AT&T facility is low. B&N determined the direction of regional ground-water flow to be to the east (B&N, 1983).

In addition, eight releases at the AT&T facility were reported to the OEPA Emergency Response Division between January 1978 and July 1986. These releases, which include releases of HCL, sodium hydroxide solution, PCE, oil, and hexachrome, are summarized in an OEPA Emergency Response Pollution Incidents database. Limited information regarding these releases is provided in a computer print out of OEPA's database. Exact locations of these releases are not known; however, four of these releases affected Big Walnut Creek, two affected ground water, and one affected soils (OEPA, 1993).

2.5 REGULATORY HISTORY

Western Electric submitted a Notification of Hazardous Waste Activity to EPA on August 18, 1980 (Western Electric, 1980a). The facility submitted a RCRA Part A permit application on November 14, 1980. This application listed the following process codes and capacities: 41,250 gallons of container storage (S01); 16,000 gallons of tank storage (S02); 79,000 cubic yards of waste pile storage (S03); and 748,000 gallons per day of tank treatment (T01). The application listed the following waste codes: D002, F001, F002, F003, F005, F006, F007, F008, F009, and F010 (Western Electric, 1980b).

In October 1982, Western Electric petitioned EPA to remove process codes S02, S03, and T01 from the facility's Part A permit application. The facility claimed that it was exempt from permitting two (S02) 8,000-gallon storage tanks because one contained product ammonia etching solution and the other contained waste ammonia etching solution that was recycled. The facility also claimed that it had incorrectly filed the S03 process code as a protective measure. Finally, the facility claimed it was exempt from permitting the (T01) wastewater pretreatment system because the system discharged to a publicly owned wastewater treatment facility. The facility also informed EPA that the Original Container Storage Area (SWMU 19) and the Former Cyanide and Acid Waste Storage Area (SWMU 20) were closed in accordance with the facility's closure plan (Western Electric, 1982a).

In November 1982, EPA acknowledged receipt of the facility's revised Part A permit application and approved closure of the facility's Original Container Storage Area (SWMU 19) and the Former Cyanide and Acid Waste Storage Area (SWMU 20). During closure activities, both units were decontaminated, 125 drums of used oils and waste solvents were removed from SWMU 19, and 150 drums of corrosive waste were removed from SWMU 20. The oils and solvents were taken to a recycling facility, and the corrosive wastes were taken to a hazardous waste landfill. Closure of these units changed the facility's regulatory status to a generator of hazardous waste only (Western Electric, 1982a and EPA, 1982).

In June 1986, AT&T submitted an updated Notification of Hazardous Waste Activity for the facility. This notification did not include EPA hazardous waste code F010. AT&T stated that the process that generated this waste had been eliminated. AT&T did not specify what type of process was eliminated (AT&T, 1986). The facility is currently regulated as a large-quantity generator storing hazardous wastes for less than 90 days.

In the past, the facility has had RCRA compliance problems. An inspection conducted by OEPA in June 1982 cited Western Electric for disposing of waste ethanol on the ground behind the facility (OEPA, 1982). The area referred to in OEPA's inspection report may have been the Former Waste Alcohol Evaporation Pond (SWMU 22). Western Electric was also cited for various paperwork deficiencies, including the lack of a waste analysis plan, contingency plan, closure plan, and operating record (OEPA, 1982). Western Electric responded to the violations (Western Electric, 1982b), and the facility was again inspected by OEPA in January 1983. During this inspection, Western Electric was found to be in compliance with RCRA regulations, except for one paperwork violation and one drum labeling violation (OEPA, 1983).

In April 1986, OEPA inspected the facility after 1,1,1-TCA; TCE; and PCE were released to the ground water. (See Section 2.4 for a discussion of the Hydrogeologic Investigation conducted in response to the release.)

In February 1991, OEPA inspected the facility and cited AT&T for storing F006 wastewater treatment sludge in two roll-off boxes that were not well contained (OEPA, 1991a and 1991c). Soil sampling confirmed that F006 sludge, which contained nickel and chromium, had been released to the underlying soils. (See Section 2.4 for a discussion of the remedial actions taken in response to the release.)

The OEPA Air Pollution Control Division has issued AT&T 25 operating air permits for machines used throughout the facility, including soldering machines, the TCE vapor degreaser and the automatic zinc, cyanide, and nickel plating machine. OEPA has issued 28 permits to install machines, including various grinding machines. An additional 45 machines have been registered with the OEPA Air Pollution Control Division (AT&T, 1992c).

Five incidences of air permit exceedence were reported by AT&T to the Ohio Environmental Protection Agency (OEPA). These incidences occurred between December 1987 and October 1988. These five reported incidences resulted from the release of PCE in exceedence of the facility's permitted allowable limits (OEPA, 1993). Available information does not state the machines from which PCE was released.

The facility has two National Pollutant Discharge Elimination System (NPDES) permits. The permits allow the facility to discharge water into an unnamed tributary to Big Walnut Creek. The permitted discharges include water from the facility's drinking fountains, noncontact cooling water from two cooling towers used to cool the refrigerant units of two air conditioning systems, and storm water runoff. The permits require AT&T to monitor the discharge flow monthly and report the water's pH to OEPA (OEPA, 1991b).

Permitted discharges from the facility flow south into two storm sewers along Broad Street and into a pond on the south side of Broad Street. The pond empties into a stream that drains west into Big Walnut Creek, which is about 1 mile south of the facility.

The facility is also permitted by the city of Columbus to discharge pretreated process wastewater into the city of Columbus sanitary sewer system. According to Mr. Howell, AT&T samples the discharged wastewater quarterly and analyzes the water samples for all metals and

cyanide. AT&T reports the analytical results and the water's pH to the city of Columbus (PRC, 1993b).

2.6 ENVIRONMENTAL SETTING

This section describes the climate; flood plain and surface water; geology and soils; and ground water in the vicinity of the AT&T facility.

2.6.1 Climate

The climate in Franklin County is characterized by warm, humid summers and cold, cloudy winters. The yearly average temperature is 52 °F. The lowest monthly average temperature is 30 °F in January, and the highest monthly average temperature is 75 °F in July. Precipitation in central Ohio is fairly well distributed throughout the year. The yearly average rainfall in Franklin County is 36.71 inches. Rainfall peaks in March at 4.17 inches; the lowest monthly rainfall is 2.23 inches in October. The prevailing wind is to the northeast and averages 9 miles per hour throughout the year. The 1-year, 24-hour rainfall average is 2.3 inches, and annual yearly net precipitation is 3.71 inches (USDC, 1968).

2.6.2 Flood Plain and Surface Water

The AT&T facility is located in an area of minimal flooding (FEMA, 1987). The nearest surface water body, Blacklick Creek, is located 0.5 mile east of the facility and is used for recreational purposes. Big Walnut Creek is a larger surface water body also used for recreational purposes. This creek is located about 1 mile west of the facility. These two creeks flow southwest and discharge to the Scioto River. The city of Columbus obtains its municipal water supply from three reservoirs, the closest of which is Hoover Reservoir located along Big Walnut Creek about 7 miles upstream of the AT&T facility (PRC, 1993a).

The AT&T facility is located within the Big Walnut Creek drainage basin. Surface water drainage at the facility is to the south toward a pond on the south side of Broad Street. The pond empties into a stream that drains west into Big Walnut Creek.

2.6.3 Geology and Soils

The AT&T facility is located in a glaciated transition region between two physiographic provinces defined as the Central Lowlands and the Appalachian Plateau. This region was dissected during preglacial times by ancestral streams. Subsequent glaciation filled the stream valleys and covered the adjacent highlands with a heterogeneous mixture of sands, silts, gravels and clays. The thickness of these deposits varies substantially in this region from a few feet on top of the bedrock highs to over 200 feet in the center of deeply eroded valleys. The Blacklick stream valley is to the east and the Big Walnut stream valley is to the west of the AT&T facility. The facility is located along the crest of a bedrock ridge that is in between these two ancestral stream valleys (B&N, 1983).

Surface soils at the facility consist of two main soil types. The first type, Cardington silt loam occurs mainly in the northern half of the facility. This soil is typically a deep, moderately well drained soil with moderately low permeability. A subtype of the Cardington silt loam is the Cardington-Urban land complex that occurs mainly in the southern portion of the facility. This soil has been altered by construction at the facility so that exact identification of its characteristics is impossible. The second type of soil is Bennington silt loam that occurs along the extreme northwestern portion and extreme eastern side of the facility. The Bennington series is typically a moderately poor drained soil with low permeability (B&N, 1983).

Soil boring logs for water wells located near the facility state that unconsolidated glacial deposits near the facility consist of clay, sand, and gravel. Glacial deposits west of the plant are generally less than 30 feet thick and consist primarily of clay. Unconsolidated deposits east of the facility consist of clay or sand and gravel and are up to 180 feet thick (B&N, 1983).

The bedrock underlying the AT&T facility is of Mississippian and Devonian Ages. The rock formations as they occur in descending order from the bedrock surface are the Berea Sandstone, 5 to 55 feet thick; the Bedford Shale, 50 to 90 feet thick; and the Ohio Shale, 400 to 500 feet thick. The Berea Sandstone of Mississippian Age is a relatively pure, fine grained material that can be thin to massively bedded and may contain some layers of sandy shale. The Bedford shale, which is the basal formation of the Mississippian system, is generally a soft reddish-brown or bluish-gray material containing appreciable amounts of clay. The Ohio shale is a dark and somewhat sandy material that grades from massive to thinly laminated shale. All three of these rock formations are encountered at the bedrock surface in the vicinity of the AT&T facility (B&N, 1983).

2.6.4 Ground Water

Ground water is not a primary source of drinking water in the vicinity of the AT&T facility. The city of Columbus supplies water to the AT&T facility and nearby residences. The municipal water supply is obtained from three reservoirs. The closest of these is Hoover Reservoir located along Big Walnut Creek, about 7 miles upstream of the AT&T facility (PRC, 1993a).

Ground-water recharge near the facility is primarily attributable to precipitation. Based on surficial topography at the facility, the direction of regional ground-water flow is believed to be to the east (B&N, 1983). Ground water in the vicinity of the AT&T facility can be obtained from wells screened in both glacial deposits and bedrock. Ground-water yields of up to 500 gallons per minute have been reported for wells screened in sand and gravel deposits in the Blacklick stream valley located east of the facility. Bedrock ground-water yields are highly variable depending on the formations encountered. Private water wells screened in glacial deposits and formerly used within 3,000 feet of the AT&T facility yielded an average of 15 gallons per minute. Wells within 3,000 feet of the facility and screened in bedrock yielded up to 10 gallons per minute.

2.7 RECEPTORS

The AT&T facility occupies 253 acres in a mixed-use area in Columbus, Ohio. Columbus has a population of about 633,000. About 67,000 residences live within 2 miles of the facility (PRC, 1993c). The nearest receptors of a release from the AT&T facility include AT&T's 6,200 employees. The nearest residences are located about 0.25 mile south of the facility.

The AT&T facility is bordered on the north by the Bedford I Landfill, located about 0.5 mile northwest of the facility, and the Bedford II Landfill, located about 1 mile northwest of the facility; on the northeast by Columbus Steel Drums, a drum recycling facility; on the west by the Forest Lawn Cemetery; on the south by a commercial plaza and the Mount Carmel Medical Complex; and on the east by an industrial complex consisting of various warehouses and an aluminum can manufacturing company. Facility access is controlled by 24-hour security. A 6-foot chainlink fence completely encloses the facility.

The nearest surface water body, Blacklick Creek, is located about 0.5 mile east of the facility and is used for recreational purposes. A larger surface water body, also used for

recreational purposes, is Big Walnut Creek, located about 1 mile west of the facility. The city of Columbus obtains its municipal water supply from three reservoirs, the closest of which is Hoover Reservoir located about 7 miles upstream from the AT&T facility.

Sensitive environments are not located on-site. Gahana Woods is a wet meadow wetland consisting of shallow wet marshes and low trees. This area is located about 2 miles northeast of the facility. Gahana Woods is about 7 acres in size. Several smaller wetlands, between 1 and 2 acres in size, are located within 2 miles of the AT&T facility (PRC, 1993d).

3.0 SOLID WASTE MANAGEMENT UNITS

This section describes the 22 SWMUs identified during the PA/VSI. The following information is presented for each SWMU: description of the unit, dates of operation, wastes managed, release controls, history of documented releases, and PRC's observations. Figures 2-A and 2-B show the SWMU locations.

SWMU 1 **Wastewater Pretreatment System**

Unit Description: This unit consists of the following outdoor tanks: a 19,000-gallon acid and alkali surge tank; a 7,100-gallon chromate surge tank; a 6,300-gallon chromate tank; a 12,000-gallon cyanide tank; three 2,700-gallon neutralization tanks; two 1,700-gallon neutralization tanks; a 4,800-gallon neutralization tank; a 140,000-gallon clarifier; and a 20,000-gallon sludge holding tank.

These tanks are located below grade and are open to the atmosphere on top. All of these tanks, except for the chromate tanks, are constructed of concrete and are lined with PVC. The chromate tanks are constructed of concrete and lined with acid brick. All of these tanks, except for the clarifier, are covered with metal grating.

This unit also consists of an indoor filter press with a capacity of 2.1 cubic yards. This unit also consists of the following indoor tanks: a 5,000-gallon chlorine tank; a 5,000-gallon sulfur dioxide tank; a 5,000-gallon carbon dioxide tank; a 720-gallon sodium hydroxide tank; and a 20,000-gallon sludge holding tank. These tanks are constructed of steel and are located in the wastewater treatment building.

Date of Startup: This unit began operation in 1959.

Date of Closure: This unit is active.

Wastes Managed:	This unit pretreats process wastewater generated by electroplating operations and electrochemical grinding. Average flow through the system is about 75,000 gallons per day. The Wastewater Treatment Sludge Roll-off Box (SWMU 3) is below the filter press and collects F006 wastewater sludge.
Release Controls:	According to Mr. Howell, all the tanks in this unit are emptied and inspected annually. A control room located in the wastewater treatment building constantly monitors the flow of wastewater into and out of all tanks in this unit. The wastewater treatment building provides containment for the indoor tanks of this unit. Also, a trench located around the room that contains the 20,000-gallon sludge holding tank collects any liquid spills in the room and pumps the liquid into the neutralization tanks.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	PRC observed waste chromate, waste cyanide, and mixed acid and alkali wastes in the various outdoor tanks of this unit. PRC observed no cracks in the visible concrete. The indoor steel tanks appeared to be in sound condition. PRC observed no evidence of release (see Photographs No. 1, 2, and 3).
SWMU 2	**Concentrated Waste Tanks**
Unit Description:	This in-ground unit is located adjacent to the Wastewater Pretreatment System (SWMU 1). This unit consists of three rectangular concrete tanks that are open to the atmosphere on top. Two of the tanks have a capacity of 11,250 gallons and are used to store concentrated acid waste. The third tank has a capacity of 7,500 gallons and is used to store concentrated waste sodium hydroxide.

Date of Startup:	This unit began operation in 1959.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages concentrated acid and concentrated sodium hydroxide wastes generated by the facility's electroplating operations. The wastes contained in this unit are gradually fed into the facility's Wastewater Pretreatment System (SWMU 1) for treatment and ultimately discharged into the city of Columbus sanitary sewer system.
Release Controls:	This unit is equipped with pumps and high-level alarms to prevent overfilling. A control room located in the wastewater treatment building is used to constantly monitor the flow of waste into and out of this unit. The tanks are lined with PVC. One of the acid tanks is also lined with rubber.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	During the VSI, the tanks storing waste acid each contained about 3,750 gallons of waste and the third tank contained about 500 gallons of waste sodium hydroxide. The concrete walls of this unit appeared intact. PRC noted no evidence of release (see Photograph No. 4).
SWMU 3	**Wastewater Treatment Sludge Roll-Off Box**
Unit Description:	This unit is located indoors in the wastewater treatment building. This unit consists of a 25-cubic-yard steel roll-off box located below a filter press.
Date of Startup:	This unit began operation in 1959.
Date of Closure:	This unit is active.

Wastes Managed:	This unit manages F006 wastewater treatment sludge generated by the facility's wastewater treatment process. The wastes managed in this unit are ultimately disposed of at the Adams Center Landfill in Fort Wayne, Indiana.
Release Controls:	This steel unit is located indoors on a concrete surface and is lined with plastic.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The unit contained approximately 6 cubic yards of F006 wastewater treatment sludge. This steel unit appeared in sound condition. PRC observed no floor drains near this unit. PRC noted no evidence of release (see Photographs No. 5 and 6).
SWMU 4	**Electroplating Collection Pits**
Unit Description:	This unit consists of indoor concrete pits that underlie all the tanks used in the three electroplating areas. The total capacity of this unit is unknown. The pits are equipped with automatic pumping systems that pump wastes to the Wastewater Pretreatment System (SWMU 1) via the DAA and the dilute chromate and dilute cyanide piping networks. According to Mr. Howell, the pits are separated according to the types of wastes managed. Similar wastes will be collected in connecting pits and pumped collectively to SWMU 1.
Date of Startup:	This unit began operation in 1959.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages waste acid and alkali solutions, waste chromate, and waste cyanide solutions that spill during electroplating operations. The wastes managed in this unit are pumped through the DAA, chromate, or cyanide piping networks into the Wastewater Pretreatment System (SWMU 1) for treatment.

Release Controls:	This unit is equipped with automatic pumps. The pumps activate when liquid wastes have accumulated in the unit, pumping the wastes into the Wastewater Pretreatment System (SWMU 1.)
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The portion of this unit located below the programmable hoist plater and automatic nickel and chrome plater is covered by metal grating and was not visible. The portion of this unit below the acid-tin barrel plating tanks was partially visible during the VSI and contained metal pipes. However, the concrete surface of this unit could not be observed. PRC did hear one of the unit's pumps activate during the VSI (see Photographs No. 7, 8, and 9).
SWMU 5	**Container Storage Area**
Unit Description:	This unit is located outdoors at the north end of the manufacturing building. This area is divided into two sections, one roofed, the other open. The roofed section has a concrete base, measures 44 feet by 74 feet, and is roofed. This unit is enclosed by 6-inch concrete curbing and has a center collection trench. Drums containing like wastes are stored together in this unit. The open area measures 80 feet by 80 feet and manages scrap metal in 25 cubic yard roll-off boxes.
Date of Startup:	This unit began operation in approximately 1982.
Date of Closure:	This unit is active.
Wastes Managed:	The roofed section manages manages all the hazardous waste and nonhazardous used oil generated at the AT&T facility. Hazardous wastes are stored in this unit for less than 90 days and are picked up for off-site disposal or recycling. Nonhazardous used oil is picked up for off-site fuel blending. The open section manages scrap metal.

Release Controls:	This unit is surrounded by 6-inch concrete curbing and has a center collection trench. The trench is covered with metal grating, measures approximately 20 feet by 10 inches, and is approximately 8 inches deep. This unit is also equipped with a sprinkler system and enclosed by a 6-foot chain link fence. Drums containing like wastes are stored together in this unit.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The roofed section contained 23 55-gallon drums of used oil; five drums of waste TCE; one drum of waste 1,1,1-TCA; five drums of F002 waste; one drum of F005 waste; one drum of F003 and F005 waste; six drums of solder dross; one drum of waste solder paste; and one drum of PCB waste. The drums were stored on wooden pallets. PRC observed staining of the concrete base of this unit. No cracks in the base were observed (see Photographs No. 10 and 11). The open section contained one partially filled roll-off box containing scrap metal.
SWMU 6	**Solder Dross Accumulation Area I**
Unit Description:	This indoor unit consists of a total area of about 10 square feet. A 2-foot by 2-foot area is designated for the storage of a 55-gallon drum, and a table with a surface area of about 2-feet by 3-feet is designated for the storage of a 1-gallon tin bucket. The unit is located adjacent to a wave soldering machine used for cellular systems production in the manufacturing building. The base of this unit is a tile floor. PRC observed no nearby floor drains.
Date of Startup:	This unit began operation in about 1977.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages waste solder dross (D008) generated during wave soldering. Wastes from this unit are transferred to the Container

	Storage Area (SWMU 5) for less than 90-day storage and ultimately picked up for off-site recycling.
Release Controls:	This unit is located indoors in a completely enclosed building that is equipped with a sprinkler system. PRC observed no nearby floor drains.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The unit contained a partially filled 1-gallon bucket of waste solder dross (D008). At the time of the VSI, the 55-gallon drum was not at the unit. PRC noted no evidence of release (see Photograph No. 12).
SWMU 7	**Solder Dross Accumulation Area II**
Unit Description:	This indoor unit consists of a total area of about 15 square feet. An area measuring 3-feet by 3-feet is designated for the storage of a 55-gallon drum, and a table with a surface area of about 2-feet by 3-feet is designated for the storage of a 1-gallon tin bucket. The unit is located adjacent to a wave soldering machine used for cellular systems production in the manufacturing building. The drum is located on a wooden pallet and the base of this unit is a tile floor. PRC observed no nearby floor drains.
Date of Startup:	This unit began operation in about 1977.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages waste solder dross (D008) generated during wave soldering. The wastes in this unit are transferred to the Container Storage Area (SWMU 5) for less than 90-day storage and are ultimately picked up for off-site recycling.

Release Controls:	This unit is located indoors in a completely enclosed building. The building is equipped with a sprinkler system. PRC observed no nearby floor drains.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	During the VSI, the unit contained a partially filled 1-gallon bucket and a partially filled 55-gallon drum of waste solder dross. PRC noted no evidence of release (see Photographs No. 13 and 14).
SWMU 8	**Solder Dross Accumulation Area III**
Unit Description:	This indoor unit consists of a total area of about 15 square feet. An area measuring 3-feet by 3-feet is designated for the storage of a 55-gallon drum, and a table with a surface area of about 2-feet by 3-feet is designated for the storage of two 1-gallon tin buckets. The unit is located adjacent to a wave soldering machine used during network systems production in the manufacturing building. The drum is located on a wooden pallet and the base of this unit is a tile floor. PRC observed no nearby floor drains.
Date of Startup:	This unit began operation in about 1977.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages waste solder dross (D008) generated during wave soldering. The wastes in this unit are transferred to the Container Storage Area (SWMU 5) for less than 90-day storage and are ultimately picked up for off-site recycling.
Release Controls:	This unit is located indoors in a completely enclosed building. The building is equipped with a sprinkler system.
History of Documented Releases:	No releases from this unit have been documented.

Observations:	During the VSI, the unit contained two partially filled buckets and one partially filled 55-gallon drum of waste solder dross. PRC noted no evidence of release (see Photographs No. 15 and 16).
SWMU 9	**Solder Paste Accumulation Area**
Unit Description:	This indoor unit consists of an area measuring about 4-feet by 4-feet. This unit contains a 55-gallon steel drum located on a wooden pallet. The unit is located near the solder paste machines used for cellular systems production.
Date of Startup:	This unit began operation in about 1977.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages waste solder paste (D008) generated during paste soldering. The wastes in this unit are transferred to the Container Storage Area (SWMU 5) for less than 90-day storage and are ultimately picked up for off-site recycling.
Release Controls:	This unit is located indoors in a completely enclosed building. The building is equipped with a sprinkler system. PRC observed no nearby floor drains.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The unit contained one partially filled 55-gallon drum of waste solder paste. PRC noted no evidence of release (see Photograph No. 17).
SWMU 10	**Flammable and Nonflammable Waste Accumulation Area**
Unit Description:	This indoor unit is located in a product oil storage room in the northeast section of the manufacturing building. The unit consists of an area measuring about 12-feet by 5-feet. The unit contains

	two 55-gallon drums located on a concrete floor. PRC observed no nearby floor drains.
Date of Startup:	This unit began operation in 1959.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages hazardous flammable and nonflammable wastes. Flammable wastes include waste alcohol (F003 and F005) and nonflammable wastes include waste 1,1,1-TCA and waste butyl carbitol (both are F002 wastes). Wastes managed in this unit are transferred to the Container Storage Area (SWMU 5) for less than 90-day storage and ultimately picked up for off-site recycling.
Release Controls:	This unit is located in a completely enclosed room equipped with a sprinkler system. PRC observed no nearby floor drains.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The unit contained one partially filled 55-gallon drum of F003 and F005 wastes, and one partially filled 55-gallon drum of F002 nonflammable wastes. An empty 30-gallon drum was located adjacent to the 55-gallon drums. PRC observed staining on the concrete base of this unit. No cracks in the concrete were observed (see Photograph No. 18).
SWMU 11	**1,1,1-TCA Vapor Cleaner Waste Accumulation Area**
Unit Description:	This unit consists of an indoor area measuring about 4-feet by 4-feet. This unit contains a 55-gallon drum on a steel pallet located adjacent to a vapor cleaner containing 1,1,1-TCA. PRC observed no nearby floor drains.
Date of Startup:	This unit began operation in 1982.

Date of Closure:	This unit is active.
Wastes Managed:	This unit managed waste freon until July 1992. The unit currently manages waste 1,1,1-TCA (F002). Wastes managed in this unit are transferred to the Container Storage Area (SWMU 5) for less than 90-day storage and are ultimately transported off site for recycling.
Release Controls:	This unit is located in a completely enclosed building that is equipped with a sprinkler system. PRC observed no nearby floor drains.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The unit contained one 55-gallon drum of virgin 1,1,1-TCA and one 55-gallon drum of virgin flux during the VSI. The unit contained no waste. PRC noted no evidence of release (see Photograph No. 19).
SWMU 12	**Freon Vapor Cleaner Waste Accumulation Area**
Unit Description:	This unit is located indoors in the manufacturing building near the cellular productions area. The unit consists of an area measuring about 4-feet by 4-feet. The unit contains a 55-gallon drum on a wooden pallet. The base of the unit is a tile floor. PRC observed no nearby floor drains.
Date of Startup:	This unit began operation in May 1980.
Date of Closure:	During the VSI, this unit was active. However, according to Mr. Howell, this unit became inactive on December 18, 1992, and waste contained in this unit was moved to the Container Storage Area (SWMU 5).
Wastes Managed:	This unit manages waste freon (F002) generated when circuit boards are cleaned using an adjacent vapor cleaner. Wastes from this unit

	are transferred to the Container Storage Area (SWMU 5) for less than 90-day storage and ultimately transported off site for recycling.
Release Controls:	This unit is located in a completely enclosed building that is equipped with a sprinkler system. PRC observed no nearby floor drains.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	This unit contained two 55-gallon drums of virgin freon and one partially filled drum of waste freon (F002). PRC noted no evidence of release (see Photograph No. 20).
SWMU 13	**1,1,1-TCA Parts Washers Waste Accumulation Area**
Unit Description:	This unit consists of an area indoors measuring about 3-feet by 3-feet in the tool room of the manufacturing building. The unit contains a 55-gallon drum located on a tile floor. PRC observed no nearby floor drains.
Date of Startup:	This unit began operation in about 1988.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages waste 1,1,1-TCA generated when the metal grinders used to mill machines are cleaned. The grinders are cleaned in two 12-gallon parts washers located adjacent to this unit. Wastes from this unit are transferred to the Container Storage Area (SWMU 5) for less than 90-day storage. The wastes are ultimately transported off site for recycling.
Release Controls:	This unit is located in a completely enclosed building that is equipped with a sprinkler system. PRC observed no nearby floor drains.

History of Documented Releases:	No releases from this unit have been documented.
Observations:	During the VSI, the unit contained no waste. PRC noted some staining on the tile base of this unit. PRC observed no nearby floor drains (see Photographs No. 21 and 22).
SWMU 14	**TCE Still and Still Bottoms Accumulation Area**
Unit Description:	This indoor unit consists of an area measuring about 8-feet by 5-feet. This unit contains a steel vapor degreaser tank and a 55-gallon drum in front of a TCE still. The tank has a capacity of about 550 gallons. TCE still bottoms are piped from the still into the 550-gallon tank, and then pumped into the 55-gallon drum. The base of this unit is concrete. PRC observed no nearby floor drains.
Date of Startup:	This unit began operation in about 1965.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages spent TCE (F001) and TCE still bottoms (F001) generated during the distillation of waste TCE. The wastes from this unit are transferred to the Container Storage Area (SWMU 5) for less than 90-day storage. The wastes are ultimately transported off site for recycling.
Release Controls:	This unit is located in a completely enclosed building that is equipped with a sprinkler system. PRC observed no nearby floor drains.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The unit contained waste in its tank. However, PRC could not identify how much waste was in the completely closed tank. The

	unit did not contain a 55-gallon drum. PRC observed staining on the concrete base of the unit and on the sides of the tank (see Photograph No. 23).
SWMU 15	**Paint Waste Accumulation Area**
Unit Description:	This unit consists of an area indoors measuring about 3-feet by 3-feet. This unit contains one 55-gallon drum. The base of this unit is a concrete floor. PRC observed a floor drain about 5 feet from the unit. According to Mr. Howell, the floor drain used to discharge to the city of Columbus sanitary sewer system but was permanently plugged with concrete in about 1987.
Date of Startup:	This unit began operation in 1959.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages waste paint containing toluene (F005). The waste accumulated in this unit is transferred to the Container Storage Area (SWMU 5) for less than 90-day storage and is ultimately transported off site for recycling.
Release Controls:	This unit is located in a completely enclosed building that is equipped with a sprinkler system. PRC observed a floor drain about 5 feet from this unit. According to Mr. Howell, the floor drain used to discharge to the sanitary sewer but was permanently plugged with concrete in about 1987.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	The unit contained one partially filled 55-gallon drum of F005 waste paint. An adjacent 55-gallon drum contained detergent. PRC observed no evidence of release (see Photograph No. 24).

SWMU 16	**Molding Machines Used Oil Accumulation Area**
Unit Description:	This unit measures about 5-feet by 5-feet, and is located indoors in the manufacturing building near the injection molding machines. The unit contains two 55-gallon drums located on a wooden pallet. The base of this unit is concrete. PRC observed no nearby floor drains.
Date of Startup:	This unit began operation in 1959.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages nonhazardous used oil generated during the maintenance of injection molding machines. Wastes are transferred from this unit to the Container Storage Area (SWMU 5) for storage and are ultimately transported off site for fuel blending.
Release Controls:	This unit is located in a completely enclosed building that is equipped with a sprinkler system. PRC observed no nearby floor drains.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	This unit contained two 55-gallon drums of used oil. PRC noted no evidence of release (see Photograph No. 25).
SWMU 17	**Boiler House Used Oil Accumulation Area**
Unit Description:	This unit is located indoors in the boiler house. The unit consists of an area measuring about 10 feet by 4 feet and stores nonhazardous used oil in 55-gallon drums. The base of this unit is a concrete floor.

	PRC observed a floor drain located about 10 feet from this unit. According to Mr. Howell, this drain empties into a collection sump that discharges to the city of Columbus sanitary sewer.
Date of Startup:	This unit began operation in 1959.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages nonhazardous used oil generated during the maintenance of air compressors. Wastes are transferred from this unit to the Container Storage Area (SWMU 5) for storage and are ultimately transported off site for fuel blending.
Release Controls:	The boiler house in which this unit is located is equipped with a sprinkler system and provides containment for this unit.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	This unit contained one 55-gallon drum and one partially filled drum of nonhazardous used oil. PRC noted no evidence of release (see Photograph No. 26).
SWMU 18	**Tool Room Used Oil Accumulation Area**
Unit Description:	This unit consists of a 55-gallon steel drum used to store used oil located indoors on a tile floor in the Tool Room. This area measures approximately 3-feet by 3-feet.
Date of Startup:	This unit began operation in about 1988.
Date of Closure:	This unit is active.
Wastes Managed:	This unit manages nonhazardous used oil generated during the maintenance of drilling machines. Wastes from this unit are

	transferred to the Container Storage Area (SWMU 5) for storage and are ultimately transported off site for recycling.
Release Controls:	This unit is located in a completely enclosed building that is equipped with a sprinkler system. PRC observed no nearby floor drains.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	This unit contained one 55-gallon drum partially filled with used oil. PRC observed no evidence of release (see Photograph No. 27).
SWMU 19	**Original Container Storage Area**
Unit Description:	This outdoor unit was formerly located at the north end of the manufacturing building. According to Mr. Howell, this unit consisted of a 30-foot by 40-foot concrete pad surrounded by a concrete dike about 2 feet high.
Date of Startup:	This unit began operation in 1959.
Date of Closure:	EPA approved RCRA closure of this unit in November 1982.
Wastes Managed:	This unit managed used oil and waste solvents, including waste freon (F001) and waste PCE (F002).
Release Controls:	A concrete dike about 2 feet high surrounded this unit. Drainage from this area was directed into the Wastewater Pretreatment System (SWMU 1) (Western Electric, 1982a).
History of Documented Releases:	No releases from this unit have been documented.
Observations:	This unit has been removed. A building has been constructed over a portion of it, and the remaining portion has been covered with

	asphalt and gravel. The area in which this unit was located is currently used for the storage of miscellaneous items (see Photograph No. 28).
SWMU 20	**Former Cyanide and Acid Waste Storage Area**
Unit Description:	This outdoor unit is located adjacent to the Wastewater Pretreatment System (SWMU 1) and consists of a 28-foot by 30-foot concrete pad surrounded by 6-inch curbing. The unit is divided into two parts, each with its own concrete drainage trench. One half of this unit was for the storage of cyanide wastes in drums and the other half was for the storage of acid wastes in drums.
Date of Startup:	This unit began operation in 1959.
Date of Closure:	From 1959 until November 1982, this unit stored wastes in drums for greater than 90 days. In November 1982, this unit underwent RCRA closure and was then used to store wastes for less than 90 days. According to Mr. Howell, this unit has been inactive since about 1985.
Wastes Managed:	This unit was used to store waste cyanide and acid, including cyanide residue (F008) and waste chromic acid residue (D001, D002, and D007). The wastes managed in this unit were ultimately transported off site for disposal.
Release Controls:	Drainage from the half of this unit that stored cyanide drained into an adjacent 12,000-gallon cyanide tank in SWMU 1. Drainage from the other half, which stored waste acid, was directed into an adjacent 7,100-gallon chromate surge tank at SWMU 1.
History of Documented Releases:	No releases from this unit have been documented.

Observations:	This unit contained no waste during the VSI. PRC observed no cracks in the concrete and no evidence of release (see Photograph No. 29).
SWMU 21	**Former Waste Ammonia Etching Solution Tank**
Unit Description:	This indoor unit consisted of an 8,000-gallon fiberglass tank on a concrete pad that was surrounded by a concrete dike about 4 feet high.
Date of Startup:	This unit began operation in about 1968.
Date of Closure:	This unit was removed in 1986.
Wastes Managed:	This unit managed waste ammonia etching solution (D002) generated when printed wiring boards were manufactured.
Release Controls:	According to Mr. Howell, this unit was located on a concrete base and was enclosed by a concrete dike about 4 feet high. This unit was located in a completely enclosed building that is equipped with a sprinkler system. PRC observed no nearby floor drains.
History of Documented Releases:	No releases from this unit have been documented.
Observations:	PRC observed the location of this former unit, which now contains a metal chamber used to test various switches manufactured at the AT&T facility (see Photograph No. 30).
SWMU 22	**Former Waste Alcohol Evaporation Pond**
Unit Description:	This unit was located in the northern half of the facility along the eastern property line. This unit consisted of a depression, about 15 feet in diameter, in an open field (B&N, 1983).
Date of Startup:	This unit began operation in 1959.

Date of Closure:	This unit became inactive in 1978 according to facility representatives. During a compliance evaluation inspection, OEPA cited Western Electric for disposing of waste ethanol on the ground behind the facility in 1982. This area may have been SWMU 22.
Wastes Managed:	This unit managed waste alcohol generated during the manufacture of fuses. Waste alcohol was placed in this unit and allowed to evaporate to the atmosphere.
Release Controls:	This unit was not lined and had no release controls.
History of Documented Releases:	A Phase I and a Phase II hydrogeologic investigation conducted at the AT&T facility concluded that the Former Waste Alcohol Evaporation Pond (SWMU 22) was a potential source of ground-water contamination (B&N, 1983 and 1986). However, available information does not indicate that samples have been collected from this unit.
Observations:	PRC learned of this unit after the VSI. This unit was not mentioned during the VSI, and PRC did not observe this unit.

4.0 AREAS OF CONCERN

PRC identified one AOC during the PA/VSI. This AOC is discussed below; its location is shown in Figure 2A.

AOC 1 Ground-water Contamination

A Phase I and a Phase II hydrogeologic investigation conducted at the AT&T facility concluded that ground-water contamination beneath the AT&T facility was due to on-site sources. The Phase I hydrogeologic investigation report cited the facility's, underground pipelines, aboveground solvent pumps, and Former Waste Alcohol Evaporation Pond (SWMU 22) as potential sources of contamination (B&N, 1983 and 1986). The report also cited the facility's former USTs as potential sources of contamination. However, according to Mr. Howell, No. 2 fuel oil was the only material stored in on-site USTs.

The Phase I hydrogeologic investigation was conducted at the AT&T facility by B&N in response to a release of 1,1,1-TCA, TCE; and PCE to the ground water. The contaminants were detected in samples collected from a collection drain that extends around the foundation of the boiler house (see Section 2.4). TCE and 1,1,1-TCA were also detected in ground-water samples collected from a stand pipe used as an on-site monitoring well (B&N, 1983).

Additional ground-water sampling conducted by B&N in 1984 during a Phase II hydrogeologic investigation confirmed that ground water beneath the facility had been contaminated by solvents used at the AT&T facility (B&N, 1986). An April 1986 OEPA inspection report recommended that when completed, the Phase II hydrogeologic investigation report be reviewed by OEPA.

There is no evidence that OEPA has required AT&T to conduct any remedial action in response to the ground-water contamination. PRC considers the ground-water contamination an AOC because ground-water contamination may still be present at the facility.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The PA/VSI identified 22 SWMUs and 1 AOC at the AT&T facility. Background information on the facility's location; operations; waste generating processes and waste management practices; history of documented releases; regulatory history; environmental setting; and receptors is presented in Section 2.0. SWMU-specific information, such as the unit's description, dates of operation, wastes managed, release controls, history of documented releases, and observed condition, is presented in Section 3.0. The AOC is discussed in Section 4.0. Following are PRC's conclusions and recommendations for each SWMU and AOC. Table 3, at the end of this section, summarizes the SWMUs and AOCs at the facility and the recommended further actions.

SWMU 1 **Wastewater Pretreatment System**

Conclusions: This unit consists of several indoor and outdoor tanks that appeared to be in sound condition. The outdoor tanks are constructed of concrete and are lined with PVC or acid brick. The indoor tanks are constructed of steel. According to Mr. Howell, all of the tanks in this unit are emptied and inspected annually. A control room located in the wastewater treatment building constantly monitors the flow of waste into and out of this unit. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 2 **Concentrated Waste Tanks**

Conclusions: This outdoor unit consists of three concrete tanks that appeared in sound condition. The tanks are lined with PVC and one of the tanks is also lined with rubber. This unit is equipped with pumps, and a control room located in the wastewater treatment building is used to constantly monitor the flow of waste into and out of this unit. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 3 **Wastewater Treatment Sludge Roll-Off Box**

Conclusions: This indoor unit consists of a steel roll-off box lined with plastic. This unit and the concrete below it appeared in sound condition. The wastewater treatment building provides containment to this unit. No nearby floor drains were observed. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 4 **Electroplating Collection Pits**

Conclusions: This unit consists of indoor concrete pits underlying all the tanks in the three electroplating areas. The unit is equipped with automatic pumps that activate when liquid wastes have accumulated in the unit. The wastes are pumped into the Wastewater Pretreatment System (SWMU 1) via the DAA, chromate, or cyanide piping networks. According to Mr. Howell, residue is annually cleaned from this unit. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 5 **Container Storage Area**

This unit is divided into two sections, one roofed, the other open. The roofed section is outdoors, has a concrete base, is surrounded by 6-inch concrete curbing, and has a center collection trench. This unit manages hazardous waste in drums. The collection trench and the concrete curbing provide containment to this unit. The open unit manages scrap metal in 25 cubic yard roll-off boxes. PRC observed staining on the concrete base of the roofed section; however, no cracks were observed. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 6 **Solder Dross Accumulation Area I**

Conclusions: This unit, containing a 1-gallon tin bucket and, periodically, a 55-gallon steel drum, is located in a completely enclosed building. PRC observed no nearby floor drains. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 7 **Solder Dross Accumulation Area II**

Conclusions: This unit, consisting of a 1-gallon tin bucket and a 55-gallon steel drum, is located in a completely enclosed building. PRC observed no nearby floor drains. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 8 **Solder Dross Accumulation Area III**

Conclusions: This unit, containing two tin 1-gallon buckets and a 55-gallon steel drum, is located in a completely enclosed building. PRC observed no nearby floor drains. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 9 **Solder Paste Accumulation Area**

Conclusions: This unit, containing a 55-gallon steel drum, is located in a completely enclosed building. PRC observed no nearby floor drains. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 10 **Flammable and Nonflammable Waste Accumulation Area**

Conclusions: This unit is located in a completely enclosed room inside the manufacturing building. PRC observed no nearby floor drains. PRC observed staining on the concrete base of this unit; however, no cracks were observed. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 11 **1,1,1-TCA Vapor Cleaner Waste Accumulation Area**

Conclusions: This unit, containing a 55-gallon drum, is located in a completely enclosed building. PRC observed no nearby floor drains. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 12 **Freon Vapor Cleaner Waste Accumulation Area**

Conclusions: This unit, containing a 55-gallon drum, is located in a completely enclosed building. PRC observed no nearby floor drains. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 13 **1,1,1-TCA Parts Washers Waste Accumulation Area**

Conclusions: This unit, containing a 55-gallon drum, is located in a completely enclosed building. PRC observed no nearby floor drains. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 14 **TCE Still and Still Bottoms Accumulation Area**

Conclusions: This indoor unit containing a still, steel tank, and a 55-gallon drum is located in a completely enclosed building. PRC observed staining on the concrete base of this unit and on the sides of the tank. PRC observed no nearby floor drains. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 15 **Paint Waste Accumulation Area**

Conclusions: This indoor unit consists of a 55-gallon drum in a completely enclosed building. PRC observed a floor drain about 5 feet from this unit. According to Mr. Howell, the floor drain formerly discharged to the sanitary sewer but was permanently plugged with concrete in about 1987. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, or air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 16 **Molding Machines Used Oil Accumulation Area**

Conclusions: This unit, consisting of two 55-gallon drums, is located in a completely enclosed building. PRC observed no nearby floor drains. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, or air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 17 **Boiler House Used Oil Accumulation Area**

Conclusions: This unit, consisting of two 55-gallon drums in an area measuring about 10 feet by 4 feet, is located in the boiler house. PRC observed a nearby floor drain that, according to Mr. Howell, drains into a collection sump and is discharged to the city of Columbus sanitary sewer.

Recommendations: PRC recommends no further action at this time.

SWMU 18 **Tool Room Used Oil Accumulation Area**

Conclusions: This indoor unit, consisting of a 55-gallon drum, is located in a completely enclosed building. PRC observed no nearby floor drains. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 19 **Original Container Storage Area**

Conclusions: This outdoor unit consisted of a concrete pad surrounded by a concrete dike about 2 feet high. Drainage from this unit was directed into the Wastewater Pretreatment System (SWMU 1). EPA approved closure of this unit in November 1982. This unit has no documented release history. The potential for a release from this removed unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 20 **Former Cyanide and Acid Waste Storage Area**

Conclusions: This outdoor unit consists of a concrete pad surrounded by 6-inch curbing. This unit is divided into two parts, each with its own concrete drainage trench. Drainage from the half of this unit that stored cyanide drains into an adjacent 12,000-gallon cyanide tank (SWMU 1). Drainage from the other half of the unit, which stored waste acid, drains into an adjacent

7,100-gallon chromate surge tank (SWMU 1). This unit has no documented release history. The unit was RCRA closed in 1982. The potential for a release from this unit to ground water, surface water, soil, or air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 21 **Former Waste Ammonia Etching Solution Tank**

Conclusions: This unit consisted of an 8,000-gallon fiberglass tank on a concrete pad that was surrounded by a concrete dike about 4 feet high. This unit was located in a completely enclosed building. PRC observed no nearby floor drains. This unit has no documented release history. The potential for a release from this unit to ground water, surface water, soil, and air is low.

Recommendations: PRC recommends no further action at this time.

SWMU 22 **Former Waste Alcohol Evaporation Pond**

Conclusions: This outdoor unit consisted of a depression in an open field in the northern half of the facility along the eastern property line. This unit was about 15 feet in diameter. According to Mr. Howell, waste alcohol was placed in this unit and allowed to evaporate to the atmosphere.

The potential for a release from this unit to on-site soils and ground water is high. This unit was not lined and had no release controls. According to Mr. Howell, this unit was used from 1959 until 1978. This unit may have been used as late as 1982, however. This unit was not lined. Although alcohol is very volatile, this unit had no release controls to prevent waste alcohol, or constituents that may have been present in the waste alcohol, from migrating from on-site soils to ground water.

The potential for a release from this unit to surface water is moderate. If residual contamination exists in the on-site soils, the contaminants could potentially migrate to ground water and downgradient surface water bodies.

The potential for a release from this unit to air is low. According to facility representatives, AT&T has not used this unit since 1978. Any residual waste alcohol would have already evaporated to the atmosphere.

Recommendations: PRC recommends that soil samples be collected in this area and analyzed for the presence of volatile organic compounds (VOC). If soil contamination is detected, ground-water samples should also be collected and analyzed for VOCs and SVOCs.

AOC 1 **Ground-water Contamination**

Conclusions: Ground-water samples collected in 1982, 1983, and 1984 from a collection drain that extends around the foundation of the boiler house, and from on-site monitoring wells confirmed the presence of 1,1,1-TCA; TCE; and PCE in the ground water. A Phase I and a Phase II hydrogeologic investigation conducted at the AT&T facility concluded that ground-water contamination beneath the AT&T facility was due to on-site sources. The Phase I hydrogeologic investigation report cited the facility's underground pipelines, aboveground solvent pumps, and Former Waste Alcohol Evaporation Pond (SWMU 22) as potential sources of contamination (B&N, 1983 and 1986). The report also cited the facility's former USTs as a potential source of contamination. However, according to Mr. Howell, No. 2 fuel oil was the only material stored in on-site USTs.

Recommendations: PRC recommends that ground-water samples be collected from the boiler house collection drain, the six on-site monitoring wells, and from the two on-site stand pipes. These samples should be analyzed for VOCs and SVOCs. If contamination is detected, soil sampling should be conducted around the boiler house to further identify the source and extent of the contamination.

TABLE 3

SWMU AND AOC SUMMARY

SWMU	Dates of Operation	Evidence of Release	Recommended Further Action
1. Wastewater Pretreatment System	1959 to Present	None	None
2. Concentrated Waste Tanks	1959 to Present	None	None
3. Wastewater Treatment Sludge Roll-Off Box	1959 to Present	None	None
4. Electroplating Collection Pits	1959 to Present	None	None
5. Container Storage Area	1982 (estimated) to Present	None	None
6. Solder Dross Accumulation Area I	1977 (estimated) to Present	None	None
7. Solder Dross Accumulation Area II	1977 (estimated) to Present	None	None
8. Solder Dross Accumulation Area III	1977 (estimated) to present	None	None
9. Solder Paste Accumulation Area	1977 (estimated) to Present	None	None
10. Flammable and Nonflammable Waste Accumulation Area	1959 to Present	None	None
11. 1,1,1-TCA Vapor Cleaner Waste Accumulation Area	1982 to Present	None	None

TABLE 3 (Continued)

SWMU AND AOC SUMMARY

SWMU	Dates of Operation	Evidence of Release	Recommended Further Action
12. Freon Vapor Cleaner Waste Accumulation Area	May 1980 to December 1982	None	None
13. 1,1,1-TCA Parts Washers Waste Accumulation Area	1988 (estimated) to Present	None	None
14. TCE Still and Still Bottoms Accumulation Area	1965 to Present	None	None
15. Paint Waste Accumulation Area	1959 to Present	None	None
16. Molding Machines Used Oil Accumulation Area	1959 to Present	None	None
17. Boiler House Used Oil Accumulation Area	1959 to Present	None	None
18. Tool Room Used Oil Accumulation Area	1988 (estimated) to Present	None	None
19. Original Container Storage Area	1959 to November 1982	None	None
20. Former Cyanide and Acid Waste Storage Area	1959 to 1985 (estimated)	None	None

TABLE 3 (Continued)

SWMU AND AOC SUMMARY

SWMU	Dates of Operation	Evidence of Release	Recommended Further Action
21. Former Waste Ammonia Etching Solution Tank	1968 (estimated) to 1986	None	None
22. Former Alcohol Evaporation Pond	1959 to 1978	Wastes managed in this unit were directly released to on-site soils	Sample soil; if contamination is identified, sample ground water

AOC	Dates of Operation	Evidence of Release	Recommended Further Action
1. Ground-water Contamination	Not Applicable	Documented ground-water contamination	Sample ground water in boiler house collection drain, on-site monitoring wells, and on-site stand pipes; if contamination is identified, sample soil around boiler house

REFERENCES

American Telephone & Telegraph (AT&T), 1986. Letter from AT&T to the U.S. Environmental Protection Agency (EPA) with an updated Notification of Hazardous Waste Activity, June 2.

AT&T, 1990. 1989 Generator Annual Hazardous Waste Report for the AT&T Facility, February 27.

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AT&T, 1992b. Letter from Dale Howell, AT&T Environmental Engineer, to Margaret Flaherty, PRC Environmental Management, Inc. (PRC), as a follow-up to questions asked during the December 15 and 16 Visual Site Inspection, December 22.

AT&T, 1992c. List of machines that are permitted by or registered with the Ohio Environntal Protection Agency (OEPA), December 14.

Burgess & Niple, Ltd. (B&N), 1983. Phase II Hydrogeologic Investigation Report for Investigation Conducted at the American Telephone & Telegraph facility, October.

B&N, 1986. Phase II Hydrogeologic Investigation Report for Investigation Conducted at the American Telephone & Telegraph facility, March.

Environmental Protection Agency (EPA), 1982. Letter from EPA to the Western Electric Company (Western Electric) approving closure of the facility's container storage areas and changing the facility's status to that of a generator only, November 23.

Federal Emergency Management Agency (FEMA), 1987. Flood Insurance Rate Map for Franklin and Fairfield Counties, January 16.

OEPA, 1982. Letter from OEPA to Western Electric regarding June 28 inspection, July 29.

OEPA, 1983. OEPA letter to Western Electric discussing January 14, 1983 OEPA inspection, January 19.

OEPA, 1986. Field Activity Report discussing April 8, 1986 OEPA inspection of AT&T facility, April 21.

OEPA, 1991a. OEPA Report of Inspection for OEPA inspections conducted at the AT&T facility on February 20, 21, and 22, April 22.

OEPA, 1991b. National Pollutant Discharge Elimination System Permit, issued to the AT&T facility, effective September 17.

OEPA, 1991c. Letter from OEPA to AT&T discussing February 1991 facility inspection in which AT&T was cited for storing F006 wastewater treatment sludge in pervious roll-off boxes, July 25.

OEPA, 1992a. Letter from OEPA to AT&T discussing the documented release of F006 wastewater treatment sludge to soils underlying two roll-off boxes, January 16.

OEPA, 1992b. OEPA interoffice memorandum discussing soil remediation conducted in response to the release of F006 wastewater treatment sludge, July 30.

OEPA, 1993. Computer print out of OEPA Emergency Response Pollution Incidents occurring at the AT&T facility between January 1978 and December 1992, January 15.

PRC, 1993a. Telephone conversation between Margo Fulmer, ODNR, and Margaret Flaherty, PRC, regarding surface water usage near the AT&T facility, January 8.

PRC, 1993b. Telephone conversation between Dale Howell, AT&T, and Margaret Flaherty, PRC January 13.

PRC, 1993c. Telephone conversation between Barbara Burgman, City of Columbus Economic Development, and Margaret Flaherty, PRC, January 11.

PRC, 1993d. Telephone conversation between Jack Henry, ODNR, and Margaret Flaherty, PRC, regarding wetlands near the AT&T facility, January 8.

PRC, 1993e. Telephone conversation between Wes Drake, OEPA Emergency Response Division, and Margaret Flaherty, PRC, January 17.

PRC, 1993f. Telephone conversation between Don Cavote, OEPA Division of Air Pollution Control, and Margaret Flaherty, PRC, February 10.

U.S. Department of Commerce (USDC), 1968. Climatological Data Report, Annual Summary with Comparative Data for Columbus, Ohio.

U.S. Geological Survey (USGS), 1985. Reynoldsburg, Ohio, Quadrangle, 7.5-Minute Series.

Western Electric, 1980a. Notification of Hazardous Waste Activity, August 18.

Western Electric, 1980b. Resource Conservation and Recovery Act (RCRA) Part A Permit Application, November 14.

Western Electric, 1982a. Letter from Western Electric to EPA describing changes to be made to the facility's Part A Permit Application and stating closure of the facility's container storage areas, October 29.

Western Electric, 1982b. Letter from Western Electric to OEPA in response to violations noted during June 28 inspection, September 27.

ATTACHMENT A

EPA PRELIMINARY ASSESSMENT FORM 2070-12

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	OHD 004 282 703

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO. OR SPECIFIC LOCATION IDENTIFIER				
American Telephone and Telegraph (AT&T)	6200 East Broad Street				
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 COUNTY**	**07 COUNTY CODE**	**08 CONG DIST**
Columbus	OH	43213	Franklin		
09 COORDINATES: LATITUDE 39° 38' 30" N	**LONGITUDE** 82° 50' 16" W				

10 DIRECTIONS TO SITE (Starting from nearest public road)
Take U.S. Interstate 270 South to Broad Street; facility is about 0.75 mile east of U.S. Interstate 270

III. RESPONSIBLE PARTIES

01 OWNER (If known)	02 STREET (Business, mailing residential)		
AT&T	6200 East Broad Street		
03 CITY	**04 STATE**	**05 ZIP CODE**	**06 TELEPHONE NUMBER**
Columbus	OH	43213	(614) 860-2000
07 OPERATOR (If known and different from owner)	**08 STREET (Business, mailing, residential)**		
09 CITY	**10 STATE**	**11 ZIP CODE**	**12 TELEPHONE NUMBER**

13 TYPE OF OWNERSHIP (Check one)
☒ A. PRIVATE ☐ B. FEDERAL: _____ (Agency Name) ☐ C. STATE ☐ D. COUNTY ☐ E. MUNICIPAL
☐ F. OTHER _____ (Specify) ☐ G. UNKNOWN

14. OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)
☐ A. RCRA 3010 DATE RECEIVED: 08/18/80 (MONTH DAY YEAR) ☐ B. UNCONTROLLED WASTE SITE (CERCLA 103 c) DATE RECEIVED: ___/___/___ (MONTH DAY YEAR) ☐ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION
☒ YES DATE 12/15/92
☐ NO

BY (Check all that apply)
☐ A. EPA ☒ B. EPA CONTRACTOR ☐ C. STATE ☐ D. OTHER CONTRACTOR
☐ E. LOCAL HEALTH OFFICIAL ☐ F. OTHER: _____ (Specify)

CONTRACTOR NAME(S): PRC Environmental Management, Inc. (PRC)

02 SITE STATUS (Check one)
■ A. ACTIVE ☐ B. INACTIVE ☐ C. UNKNOWN

03 YEARS OF OPERATION
1959 (BEGINNING YEAR) | Present (ENDING YEAR) ☐ UNKNOWN

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED Waste tetrachloroethylene (PCE) was formerly managed at the facility. The facility currently manages pretreated process wastewater; concentrated waste acid and sodium hudroxide; wastewater treatment sludge; waste chromic acid; waste sodium hydroxide; waste zinc cyanide; zinc and copper plating filters; nickel chloride residue; waste solder dross; waste solder paste; waste alcohol; waste 1,1,1-Trichloroethane (1,1,1-TCA); waste butyl carbitol; spent trichloroethylene (TCE); TCE still bottoms; waste paint; used oil; and polychlorinated biphenyls.

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION Ground-water contamination has been documented at the AT&T facility. Ground-water samples collected in 1982, 1983, and 1984 on-site confirmed the presence of 1,1,1-TCA; TCE; and PCE. Ground-water contamination caused from an unidentified source may be present at the facility. A waste alcohol evaporation pond was used at the facility from 1959 until about 1978. Waste alcohol placed in this unlined unit came in direct contact with on-site soils. Residual soil contamination may be present.

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste Information and Part 3 - Description of Hazardous Conditions and Incidents.)

☐ A. HIGH (Inspection required promptly) ■ B. MEDIUM (Inspection required) ☐ C. LOW (Inspect on time-available basis) ☐ D. NONE (No further action needed; complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)			03 TELEPHONE NUMBER
Kevin Pierard	U.S. EPA			(312) 886-4448
04 PERSON RESPONSIBLE FOR ASSESSMENT	**05 AGENCY**	**06 ORGANIZATION**	**07 TELEPHONE NUMBER**	**08 DATE**
Margaret B. Flaherty		PRC	(312) 856-8700	12/16/92 (MONTH DAY YEAR)

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
OH	OHD 004 282 703

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES *(Check all that apply)*

- ☐ A. SOLID
- ☐ B. POWDER, FINES
- ■ C. SLUDGE
- ■ E. SLURRY
- ■ F. LIQUID
- ☐ G. GAS
- ☐ D. OTHER _____ *(Specify)*

02 WASTE QUANTITY AT SITE *(Measures of waste quantities must be independent)*

TON _____

CUBIC YARDS _____

NO. OF DRUMS 60

03 WASTE CHARACTERISTICS *(Check all that apply)*

- ■ A. TOXIC
- ■ B. CORROSIVE
- ☐ C. RADIOACTIVE
- ■ D. PERSISTENT
- ☐ E. SOLUBLE
- ☐ F. INFECTIOUS
- ■ G. INFLAMMABLE
- ☐ H. IGNITABLE
- ■ I. HIGHLY VOLATILE
- ☐ J. EXPLOSIVE
- ☐ K. REACTIVE
- ☐ L. INCOMPATIBLE
- ☐ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE	6	CY	F006 Wastewater treatment sludge
OLW	OILY WASTE	1650	GA	Nonhazardous used oil
SOL	SOLVENTS	660	GA	1,1,1-TCA; TCE; and freon
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS			
ACD	ACIDS	7,000	GA	Electroplating waste acid and waste sodium hydroxide
BAS	BASES	500	GA	in wastewater pretreatment
MES	HEAVY METALS	550	GA	D008 Waste solder dross

IV. HAZARDOUS SUBSTANCES *(See Appendix for most frequently cited CAS Numbers)*

CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
SOL	Trichloroethylene	79-01-6	55-gallon drums/off-site recycling		
SOL	Trichloroethane	25323-89-1	55-gallon drums/off-site recycling		
ACD	Hydrochloric Acid	7647-01-0	Wastewater pretreatment system		
BAS	Sodium Hydroxide	1310-73-2	Wastewater pretreatment system		

V. FEEDSTOCKS *(See Appendix for CAS Numbers)*

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS	Nickel	7440-02-0	FDS		
FDS	Toluene	108-88-3	FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION *(Cite specific references; e.g., state files, sample analysis, reports)*

U.S. EPA Region 5 files
OEPA files
Site visit

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE: OH	02 SITE NUMBER: OHD 004 282 703

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ■ A. GROUNDWATER CONTAMINATION — 02 ■ OBSERVED 1982, 1983 and 1984 — □ POTENTIAL — □ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: Unknown — 04 NARRATIVE DESCRIPTION

In 1982 and 1983, ground-water sampling conducted at the AT&T facility during a Phase I Hydrogeologic Investigation revealed the presence of 1,1,1-TCA; TCE; and PCE in the ground water. In 1984, these constituents were detected in the ground water during a Phase II Hydrogeologic Investigation. Ground water is not a primary source of drinking water in the area. The city of Columbus provides water to nearby residences

01 ■ B. SURFACE WATER CONTAMINATION — 02 □ OBSERVED (DATE:_____) — ■ POTENTIAL — □ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: Unknown — 04 NARRATIVE DESCRIPTION

A waste alcohol evaporation pond was used at the facility from 1959 until about 1978. Waste alcohol came in direct contact with on-site soils when placed in this unlined unit. In addition, the source of ground-water contamination at the facility has not been identified.

01 □ C. CONTAMINATION OF AIR — 02 □ OBSERVED (DATE:_____) — □ POTENTIAL — □ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None.

01 □ D. FIRE/EXPLOSIVE CONDITIONS — 02 □ OBSERVED (DATE:_____) — □ POTENTIAL — □ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None.

01 □ E. DIRECT CONTACT — 02 □ OBSERVED (DATE:_____) — □ POTENTIAL — □ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None.

01 ■ F. CONTAMINATION OF SOIL — 02 □ OBSERVED (DATE:_____) — ■ POTENTIAL — □ ALLEGED
03 AREA POTENTIALLY AFFECTED: Unknown (Acres) — 04 NARRATIVE DESCRIPTION

A waste alcohol evaporation pond was used at the facility from 1959 until about 1978. Waste alcohol came in direct contact with on-site soils when placed in this unlined unit. In addition, the source of ground-water contamination at the facility has not been identified.

01 □ G. DRINKING WATER CONTAMINATION — 02 □ OBSERVED (DATE:_____) — □ POTENTIAL — □ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None.

01 □ H. WORKER EXPOSURE/INJURY — 02 □ OBSERVED (DATE:_____) — □ POTENTIAL — □ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None.

01 □ I. POPULATION EXPOSURE/INJURY — 02 □ OBSERVED (DATE:_____) — □ POTENTIAL — □ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ — 04 NARRATIVE DESCRIPTION

None.

EPA

POTENTIAL HAZARDOUS WASTE SITE
PRELIMINARY ASSESSMENT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 STATE OH	02 SITE NUMBER OHD 004 282 703

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA 02 ☐ OBSERVED (DATE:_____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None.

01 ☐ K. DAMAGE TO FAUNA 02 ☐ OBSERVED (DATE:_____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None.

01 ☐ L. CONTAMINATION OF FOOD CHAIN 02 ☐ OBSERVED (DATE:_____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None.

01 ☐ M. UNSTABLE CONTAINMENT OF WASTES 02 ☐ OBSERVED (DATE:_____) ☐ POTENTIAL ☐ ALLEGED
03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

None.

01 ☐ N. DAMAGE TO OFF-SITE PROPERTY 02 ☐ OBSERVED (DATE:_____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None.

01 ☐ O. CONTAMINATION OF SEWERS, DRAINS, WWTPS 02 ☐ OBSERVED (DATE:_____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None.

01 ☐ P. ILLEGAL/UNAUTHORIZED DUMPING 02 ☐ OBSERVED (DATE:_____) ☐ POTENTIAL ☐ ALLEGED
04 NARRATIVE DESCRIPTION

None.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

None.

III. TOTAL POPULATION POTENTIALLY AFFECTED: _____

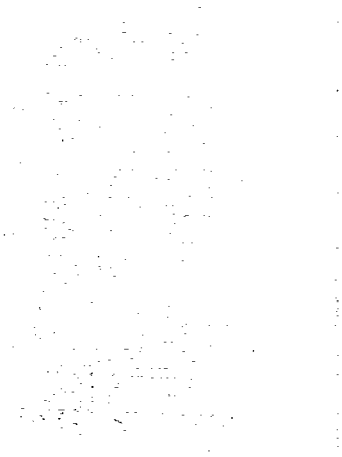
IV. COMMENTS

V. SOURCES OF INFORMATION ***(Cite specific references; e.g., state files, sample analysis, reports)***

U.S. EPA Region 5 files
OEPA files
Site visit

ATTACHMENT B

VISUAL SITE INSPECTION SUMMARY AND PHOTOGRAPHS



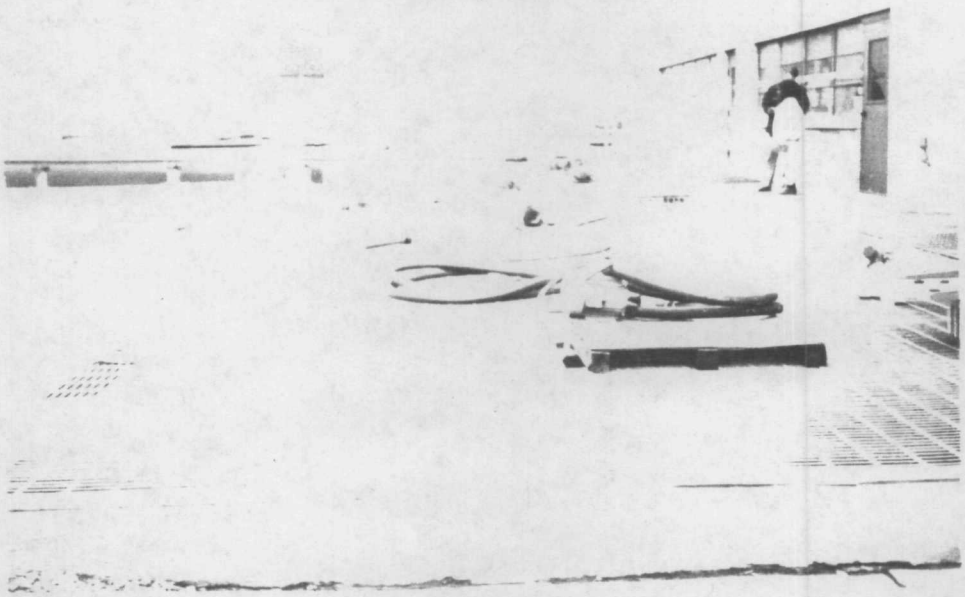
VISUAL SITE INSPECTION SUMMARY

American Telephone and Telegraph (AT&T)
6200 East Broad Street
Columbus, Ohio 43213
OHD 004 282 703

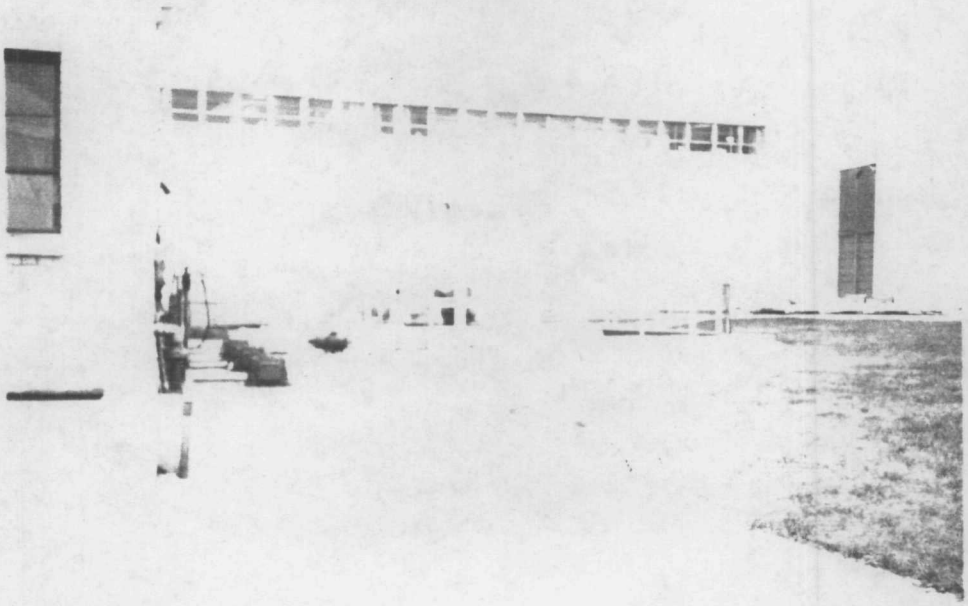
Dates:	December 15 and 16, 1992
Primary Facility Representative:	Dale Howell, Environmental Engineer
Representative Telephone No.:	614/860-5143
Additional Facility Representatives:	Barbara Thompson, Environmental Engineer
Inspection Team:	Margaret Flaherty, PRC Environmental Management, Inc. (PRC) Kristine Kruk, PRC
Photographer:	Kristine Kruk
Weather Conditions:	The weather on both days was mild, partly cloudy, and about 40 °F
Summary of Activities:	On December 15, 1992, the visual site inspection (VSI) began at 9:20 a.m. with an introductory meeting. The inspection team explained the purpose of the VSI and the agenda for the visit. Facility representatives then discussed the facility's past and current operations, solid wastes generated, and release history. Facility representatives provided the inspection team with copies of requested documents. The meeting adjourned at 5:35 p.m. On December 16, 1992, the VSI began at 9:00 a.m. Mr. Howell answered questions regarding information that was discussed with the inspection team on December 15, 1992. The VSI tour began at 10:30 a.m. The areas inspected included the Wastewater Pretreatment System (SWMU 1); the Concentrated Waste Tanks (SWMU 2); the Wastewater Treatment Sludge Roll-Off Box (SWMU 3); the Electroplating Collection Pits (SWMU 4); the Container Storage Area (SWMU 5); Solder Dross Accumulation Area I (SWMU 6); Solder Dross Accumulation Area II (SWMU 7); Solder Dross Accumulation Area III (SWMU 8); the Solder Paste Accumulation Area (SWMU 9); the Flammable and Nonflammable Waste Accumulation Area (SWMU 10); the 1,1,1-TCA Vapor Cleaner Waste Accumulation Area (SWMU 11); the Freon Vapor Cleaner Waste Accumulation Area (SWMU 12); the 1,1,1-TCA Parts Washers Waste Accumulation Area (SWMU 13); the TCE Still and Still Bottoms Accumulation Area (SWMU 14); the Paint Waste Accumulation Area (SWMU 15); the Molding Machines

Used Oil Accumulation Area (SWMU 16); the Boiler House Used Oil Accumulation Area (SWMU 17); the Tool Room Used Oil Accumulation Area (SWMU 18); the Original Container Storage Area (SWMU 19); the Former Waste Cyanide and Acid Storage Area (SWMU 20); and the Former Waste Ammonia Etching Solution Tank (SWMU 21). Photographs were taken of these SWMUs. The inspection team did not inspect the Former Waste Alcohol Evaporation Pond (SWMU 22). This unit was not discussed during the VSI and PRC did not learn of this unit until after the VSI.

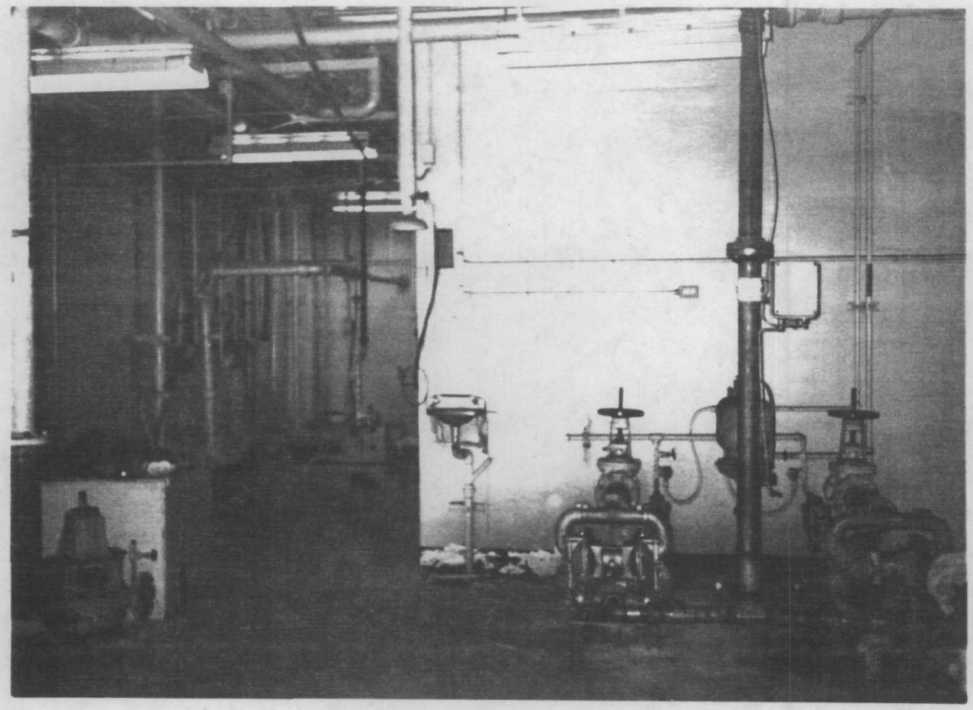
The tour concluded at 3:45 p.m., after which the inspection team held an exit meeting with facility representatives. The VSI was completed and the inspection team left the facility at 4:15 p.m.



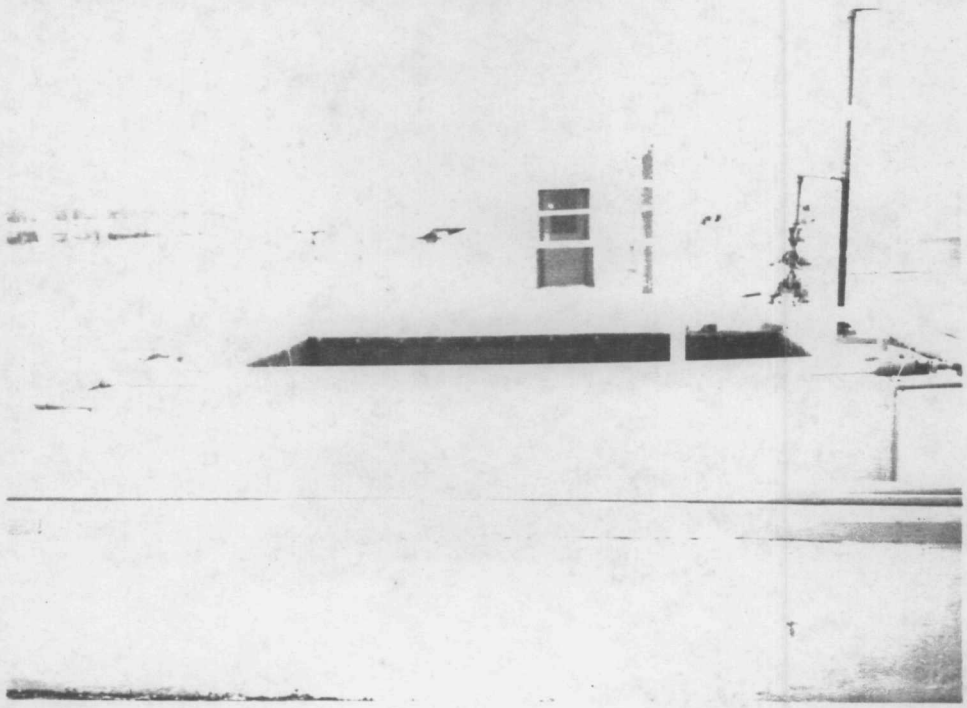
Photograph No. 1 Location: SWMU 1
Orientation: West Date: 12/16/92
Description: Acid and alkali surge tank, chromate surge tank, and chromate tank in the Wastewater Pretreatment System (SWMU 1)



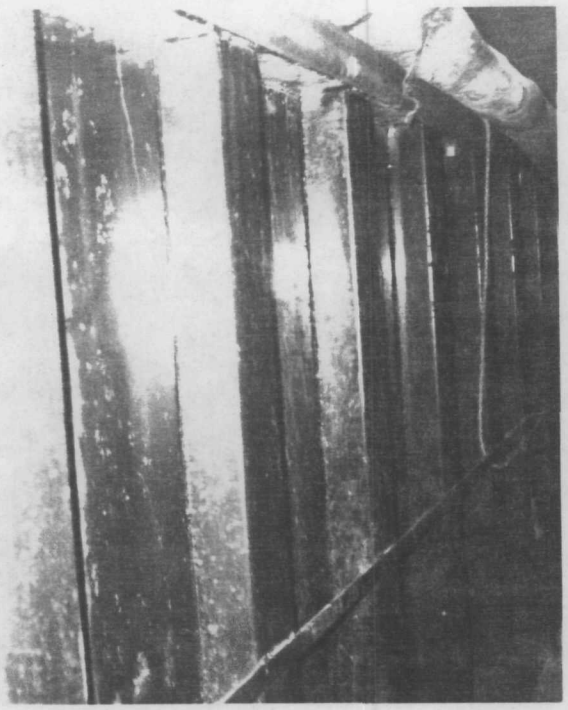
Photograph No. 2 Location: SWMU 1
Orientation: Southwest Date: 12/16/92
Description: 140,000-gallon clarifier and neutralization tanks (SWMU 1); neutralization tanks are covered with red metal grating on left side of photograph



Photograph No. 3 Location: SWMU 1
Orientation: East Date: 12/16/92
Description: 20,000-gallon sludge holding tank in basement of wastewater treatment building



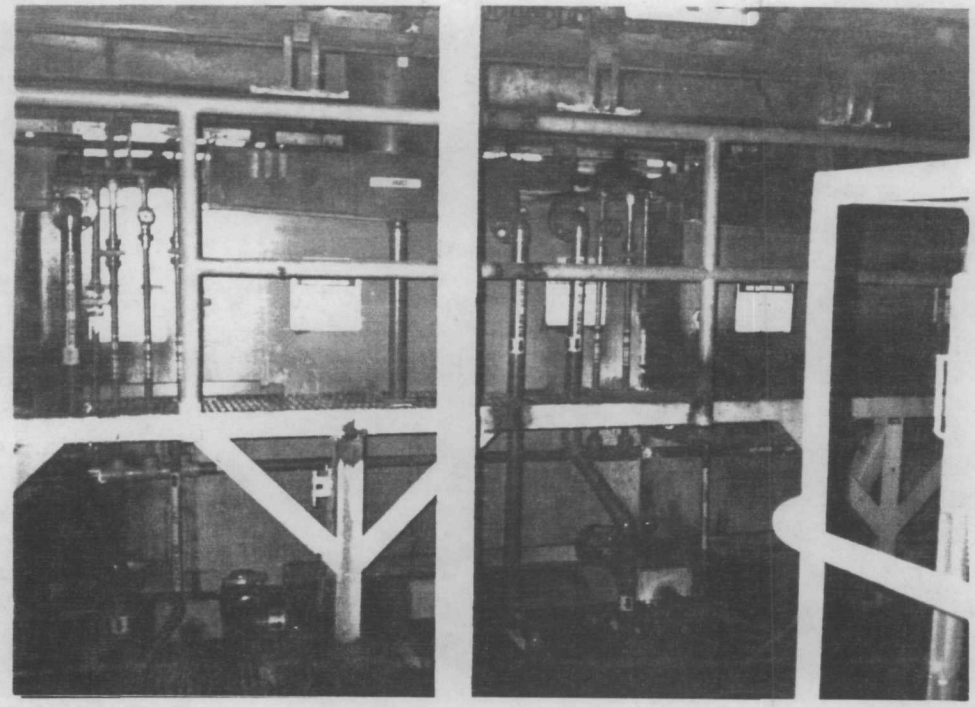
Photograph No. 4 Location: SWMU 2
Orientation: South Date: 12/16/92
Description: Concentrated Waste Tanks (SWMU 2); the two closest tanks store waste acid; the furthest tank stores waste sodium hydroxide



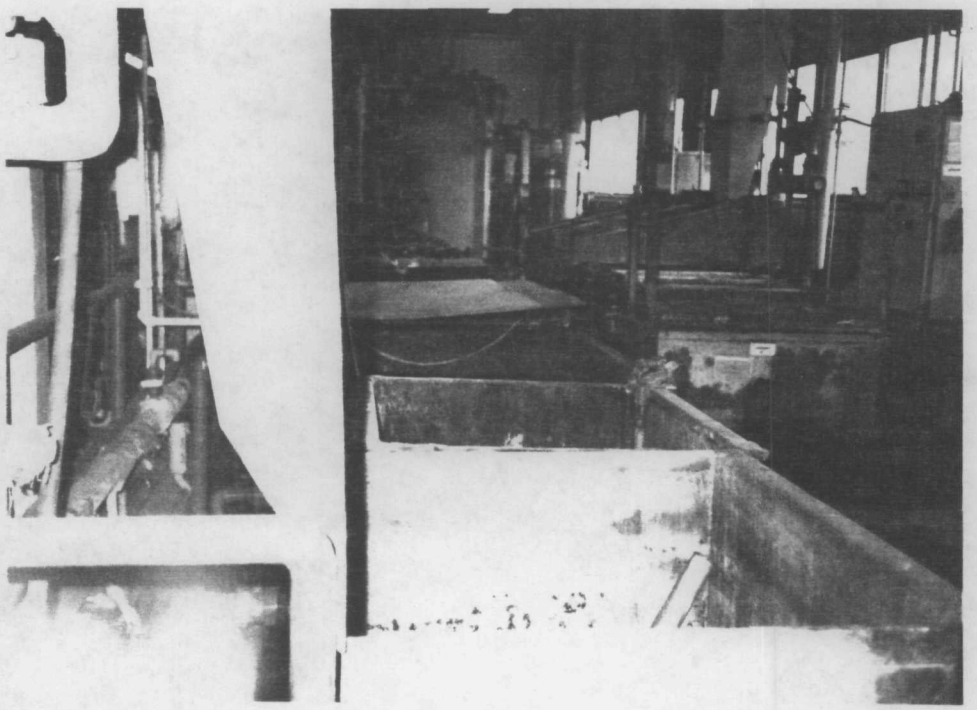
Photograph No. 5 Location: SWMU 3
Orientation: East Date: 12/16/92
Description: Wastewater Treatment Sludge Roll-off Box (SWMU 3) in wastewater treatment building used to store F006 wastewater treatment sludge

Photograph No. 6 Location: SWMU 3
Orientation: Down Date: 12/16/92
Description: F006 wastewater treatment sludge after falling from filter press

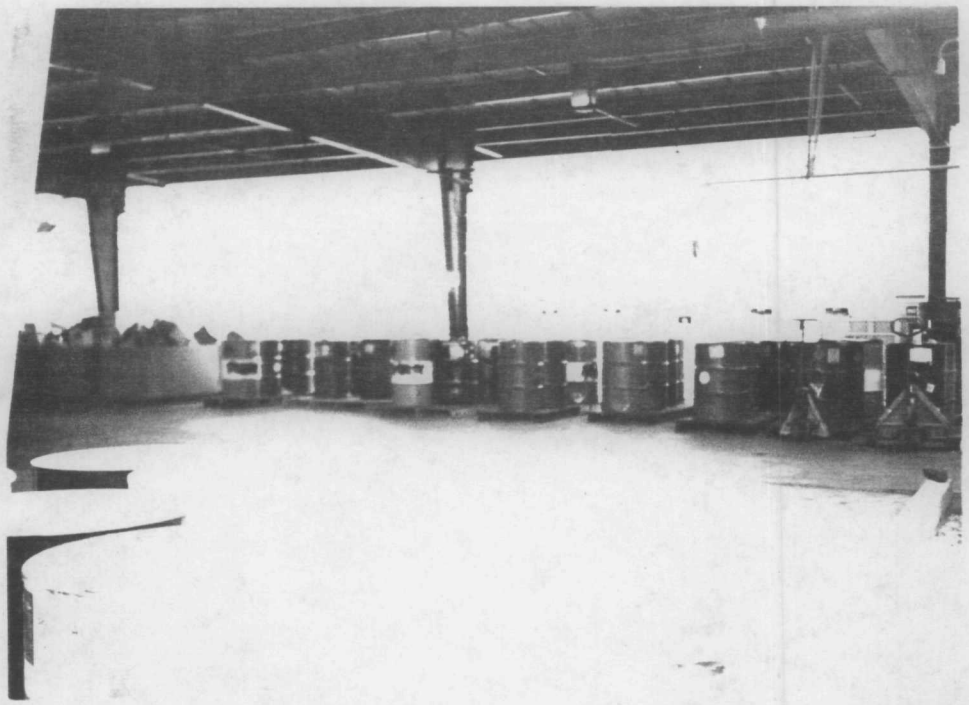
Photograph No. 7 Location: SWMU 4
Orientation: West Date: 12/16/92
Description: Electroplating tanks used in conjunction with the programmable hoist plater; Electroplating Collection Pits (SWMU 4) are located below the tanks and the metal grating



Photograph No. 8 Location: SWMU 4
Orientation: East Date: 12/16/92
Description: Electroplating tank used in conjunction with the automatic nickel and chrome plater

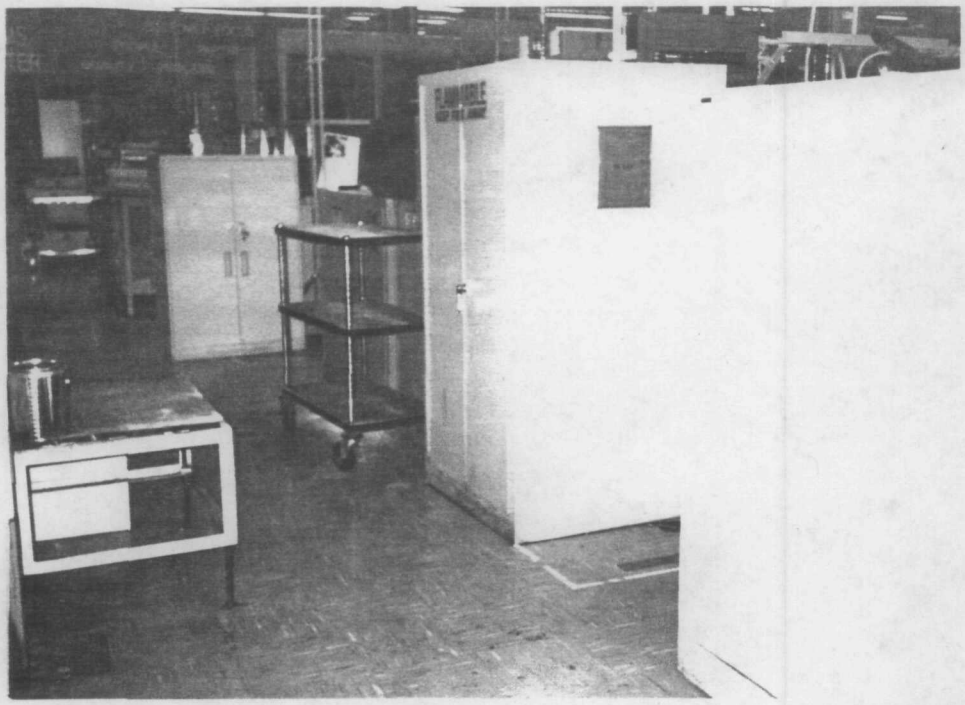


Photograph No. 9 Location: SWMU 4
Orientation: North Date: 12/16/92
Description: Electroplating tanks used in conjunction with the acid-tin barrel plater; a portion of SWMU 4 is located at left side of photograph

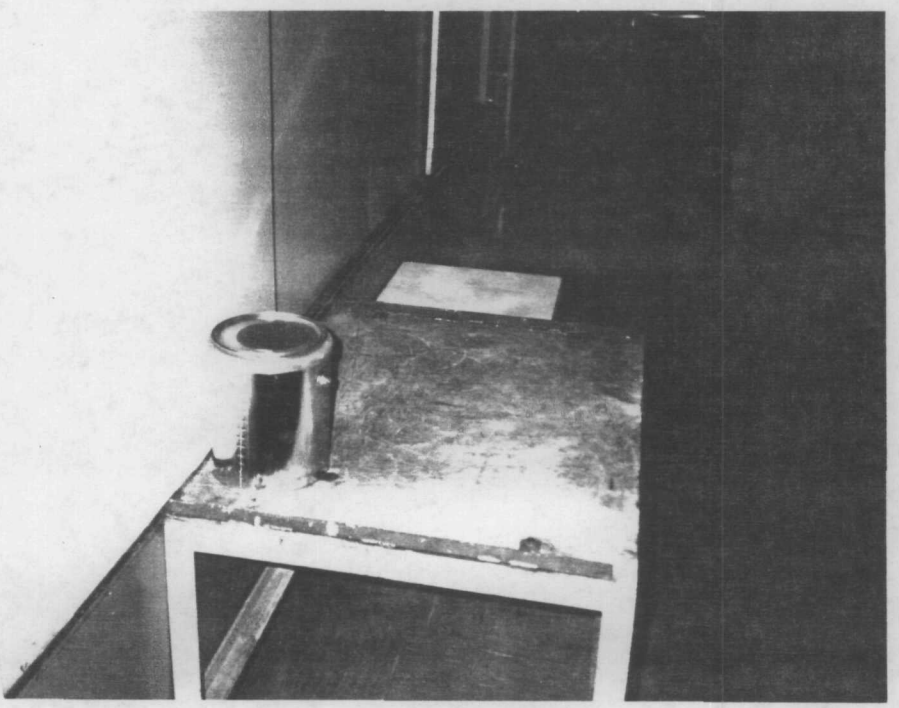


Photograph No. 10 Location: SWMU 5
Orientation: Northeast Date: 12/16/92
Description: Container Storage Area (SWMU 5) used to store nonhazardous used oil and all hazardous wastes generated at the facility

Photograph No. 11 Location: SWMU 5
Orientation: North Date: 12/16/92
Description: 55-gallon drums containing solder and PCB wastes in SWMU 5



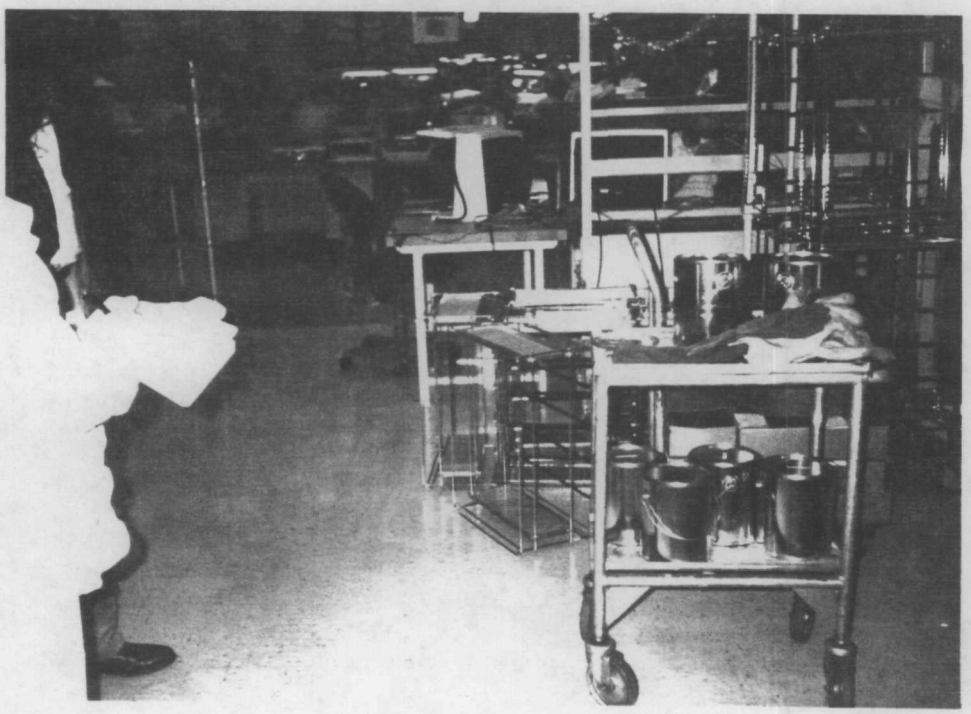
Photograph No. 12 Location: SWMU 6
Orientation: Northwest Date: 12/16/92
Description: Solder Dross Accumulation Area I (SWMU 6); 55-gallon drum is periodically located within taped section of floor on right side of photograph



Photograph No. 13 Location: SWMU 7
Orientation: West Date: 12/16/92
Description: 1-gallon bucket in Solder Dross Accumulation Area II (SWMU 7)

Photograph No. 14
Orientation: East
Description: 55-gallon drum in SWMU 7

Location: SWMU 7
Date: 12/16/92

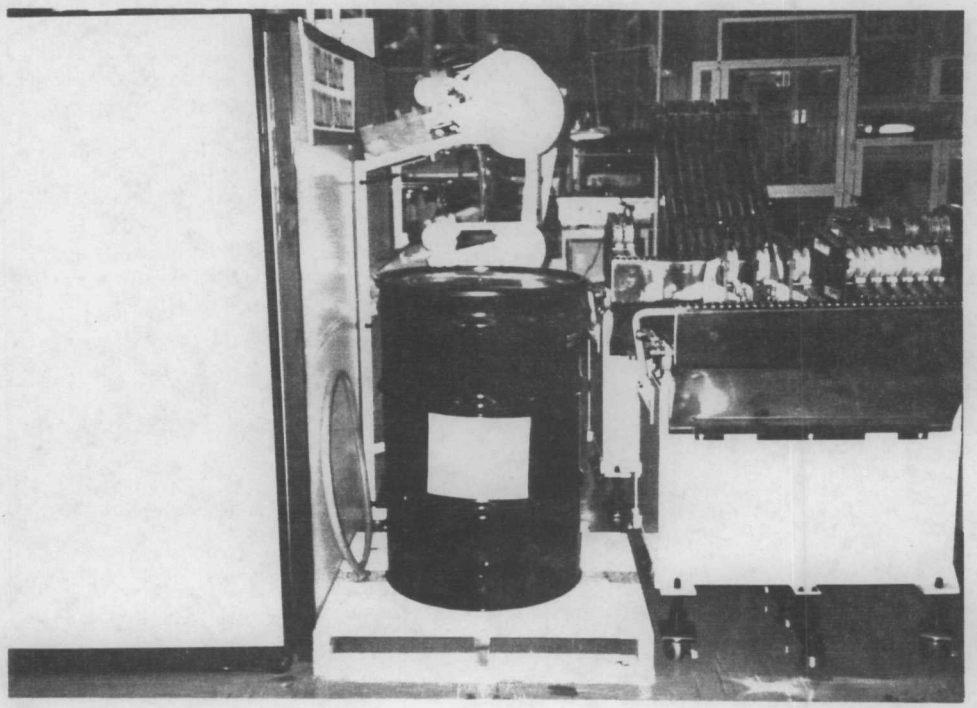


Photograph No. 15
Orientation: West
Description: Two partially filled 1-gallon buckets in SWMU 8 on top shelf; four buckets on bottom shelf are empty

Location: SWMU 8
Date: 12/16/92

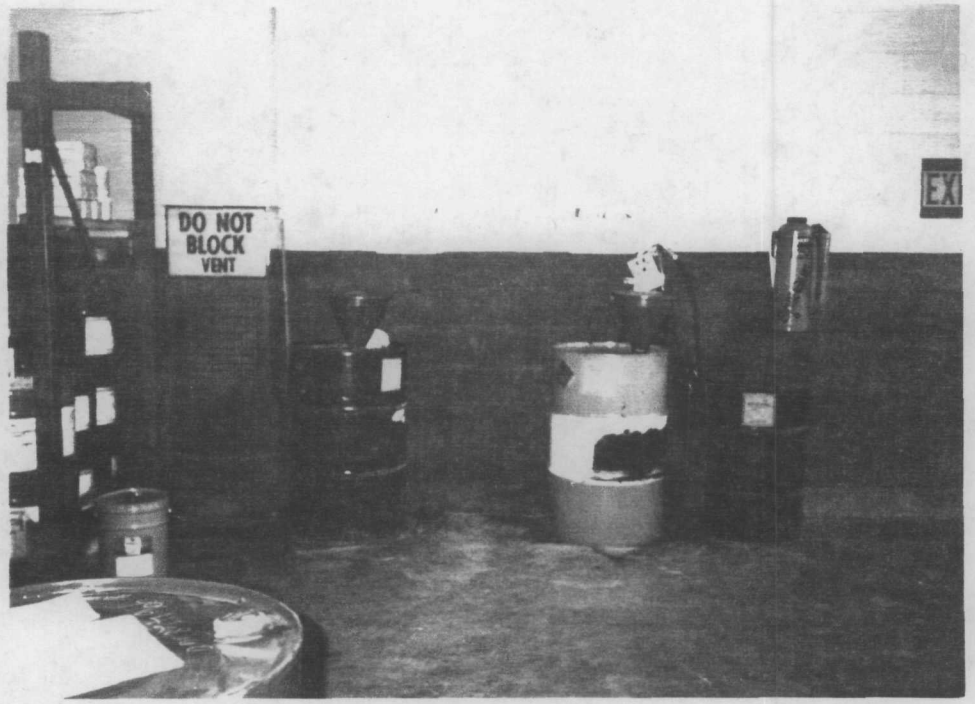
Photograph No. 16
Orientation: East
Description: 55-gallon drum in SWMU 8

Location: SWMU 8
Date: 12/16/92

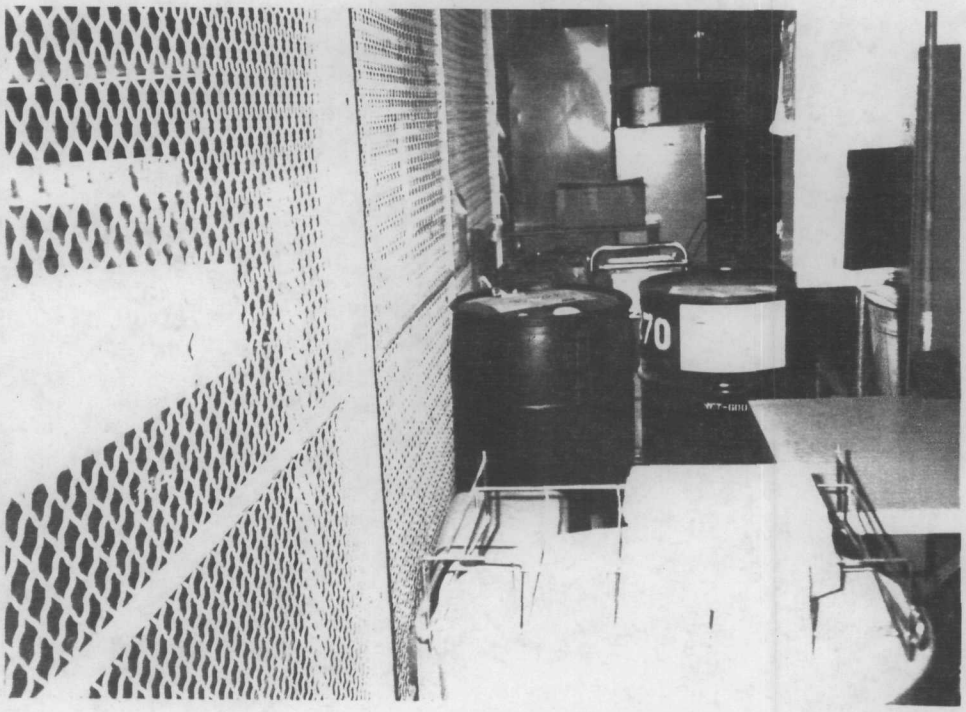


Photograph No. 17
Orientation: South
Description: 55-gallon drum in Solder Paste Accumulation Area (SWMU 9)

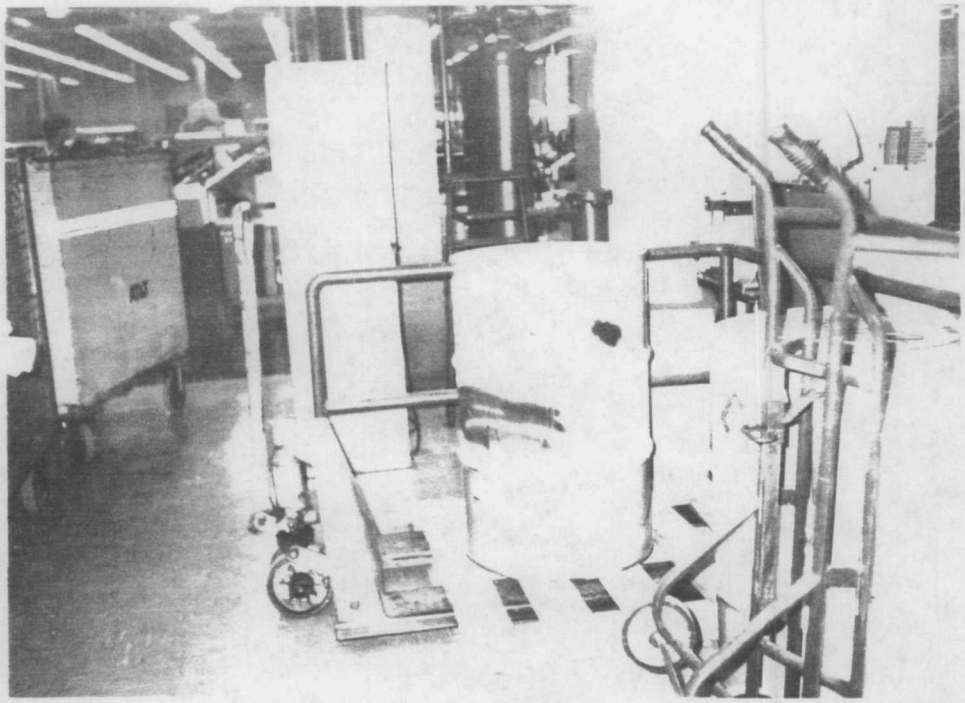
Location: SWMU 9
Date: 12/16/92



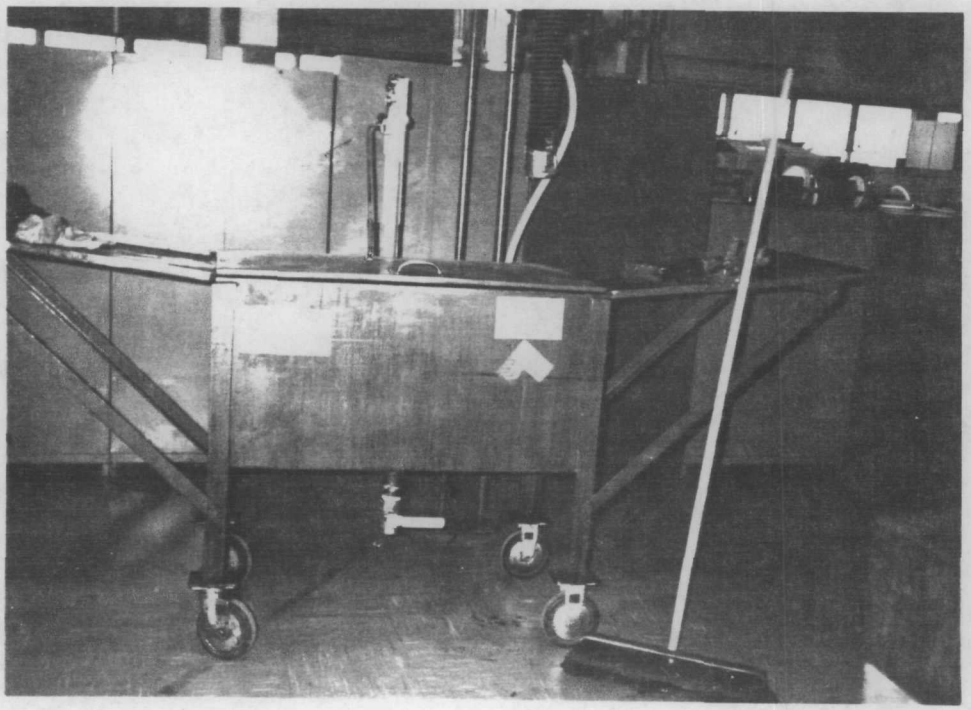
Photograph No. 18 Location: SWMU 10
Orientation: North Date: 12/16/92
Description: Flammable and Nonflammable Waste Accumulation Area (SWMU 10) in oil storage room



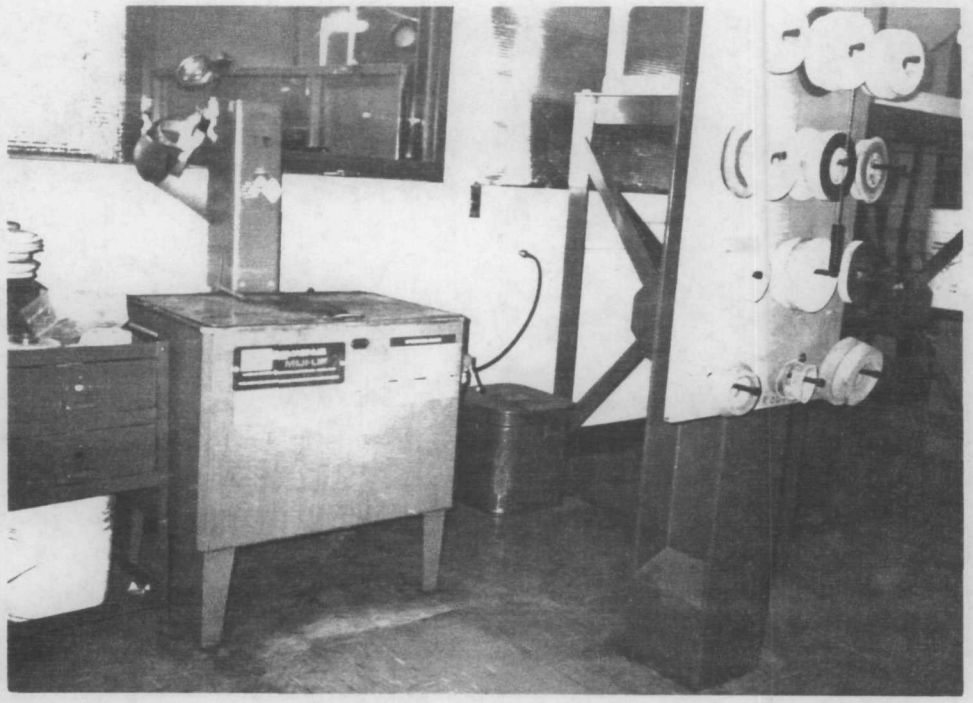
Photograph No. 19 Location: SWMU 11
Orientation: East Date: 12/16/92
Description: 1,1,1-TCA Vapor Cleaner Waste Accumulation Area (SWMU 11) containing no waste; the two 55-gallon drums in photograph contain virgin material



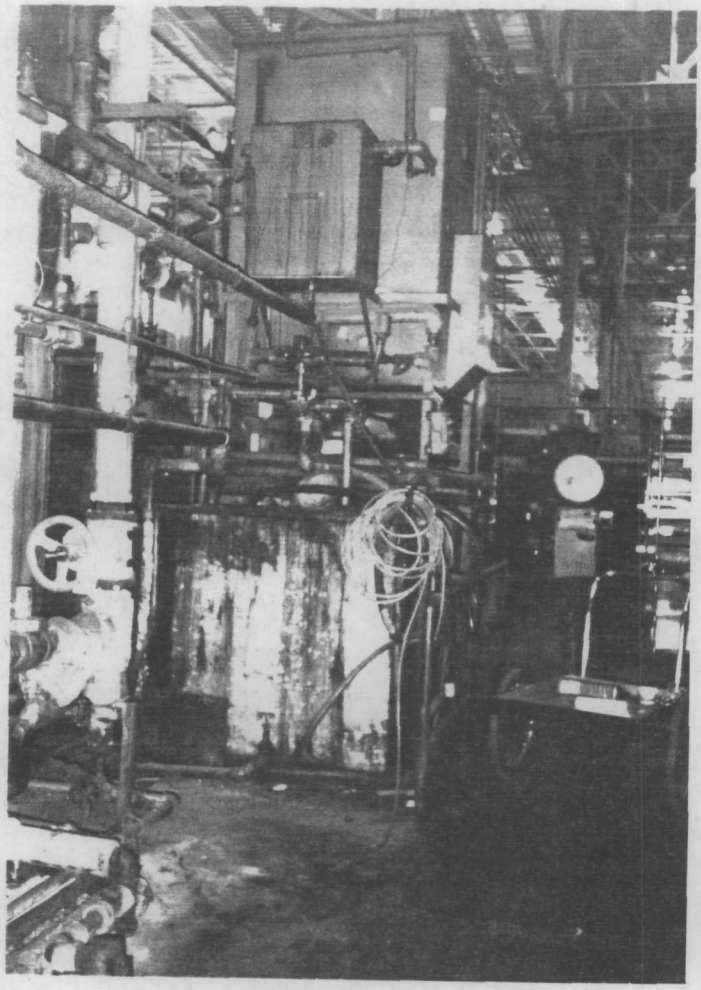
Photograph No. 20 Location: SWMU 12
Orientation: South Date: 12/16/92
Description: Freon Vapor Cleaner Waste Accumulation Area (SWMU 12) containing one partially filled 55-gallon drum of waste freon



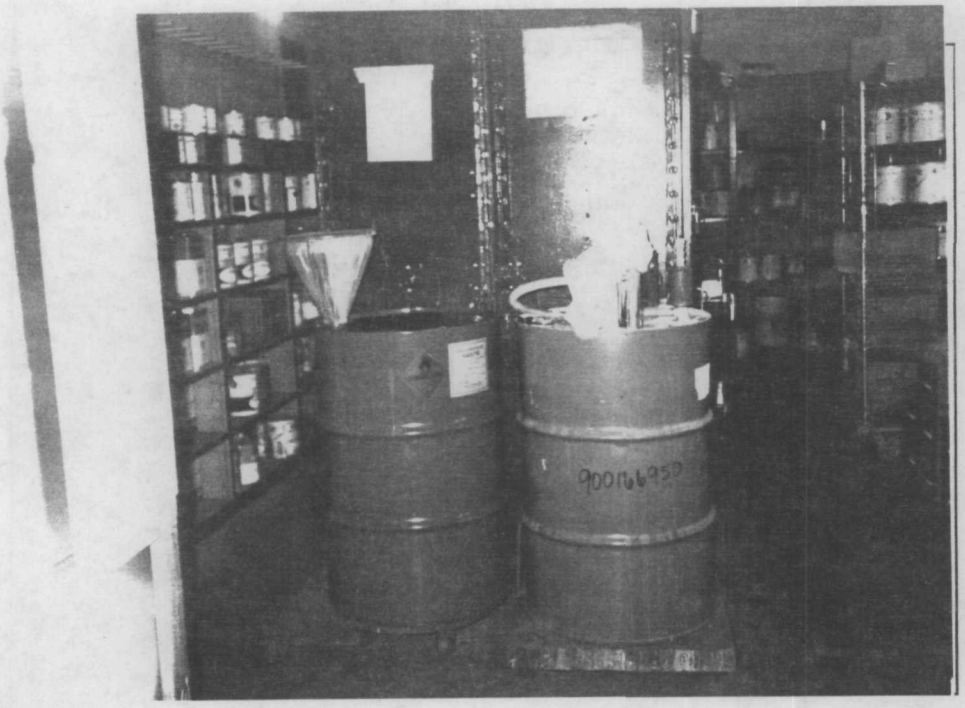
Photograph No. 21 Location: SWMU 13
Orientation: North Date: 12/16/92
Description: One of two 12-gallon parts washers located adjacent to 1,1,1-TCA Parts Washers Accumulation Area (SWMU 13) in the tool room



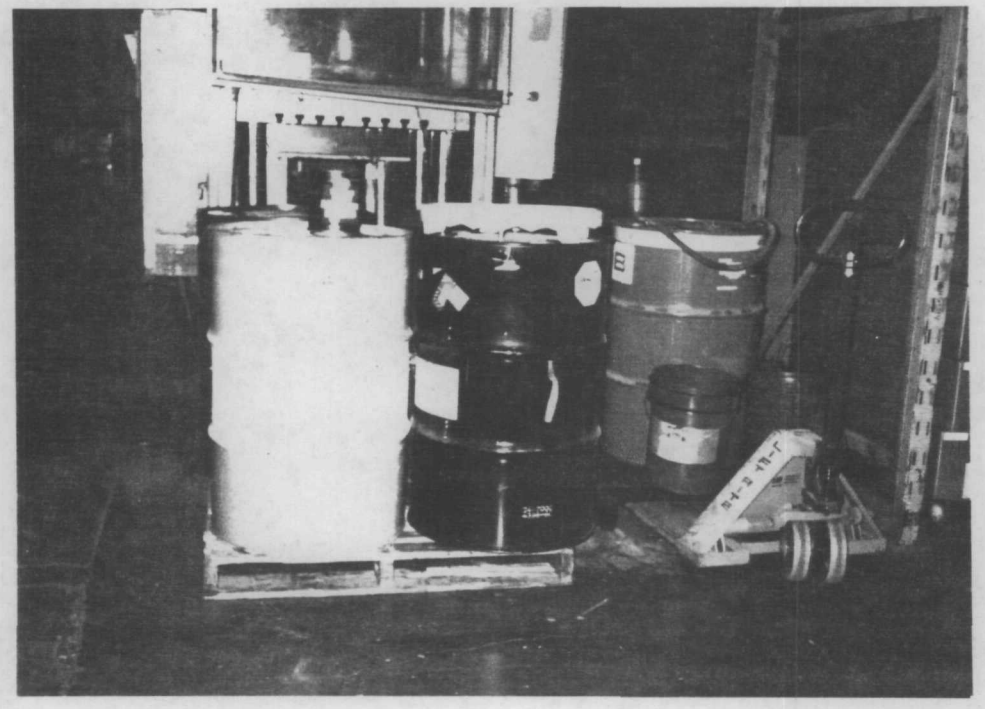
Photograph No. 22 Location: SWMU 13
Orientation: South Date: 12/16/92
Description: 12-gallon parts washer adjacent to SWMU 13; 55-gallon drum is periodically located on the right side of this parts washer



Photograph No. 23 Location: SWMU 14
Orientation: West Date: 12/16/92
Description: TCE Still and Still Bottoms Accumulation Area (SWMU 14); the 55-gallon drum is periodically located next to tank, which is on the left side of the photograph

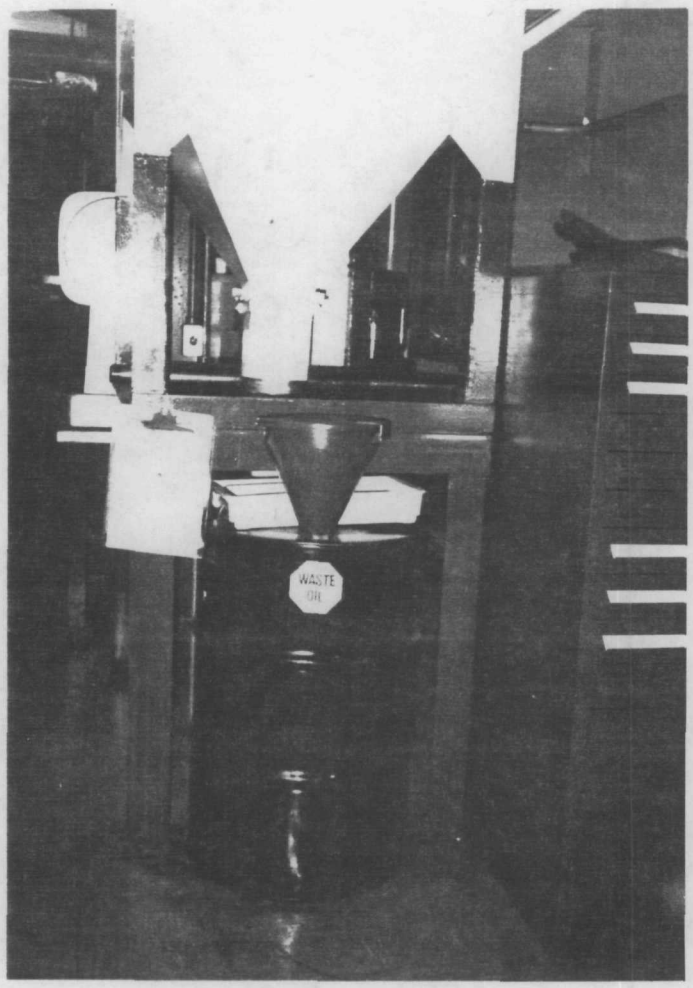


Photograph No. 24 Location: SWMU 15
Orientation: North Date: 12/16/92
Description: Paint Waste Accumulation Area (SWMU 15) in maintenance building; the 55-gallon drum on the left with covered funnel on top contains waste paint (F005), and the drum on the right contains product detergent

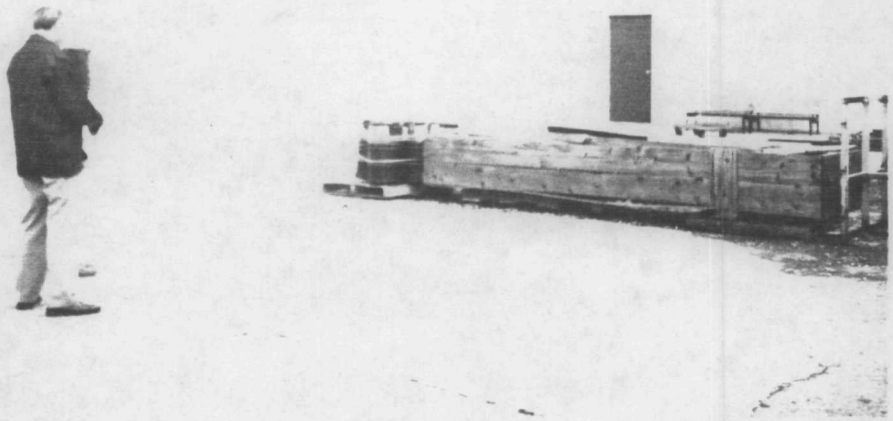


Photograph No. 25 Location: SWMU 16
Orientation: North Date: 12/16/92
Description: Molding Machines Used Oil Accumulation Area (SWMU 16) containing two partially filled 55-gallon drums of used oil

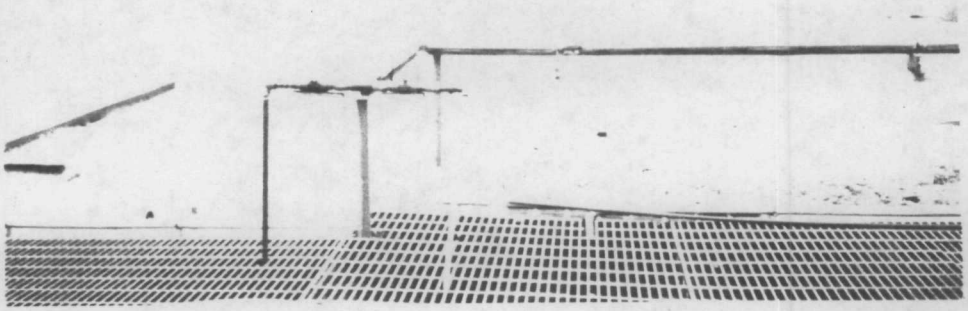
Photograph No. 26 Location: SWMU 17
Orientation: Date: 12/16/92
Description: Boiler House Used Oil Accumulation Area (SWMU 17) containing one 55-gallon and one partially filled 55-gallon drum of used oil; two drums on left contain used oil, other drums contain virgin oil



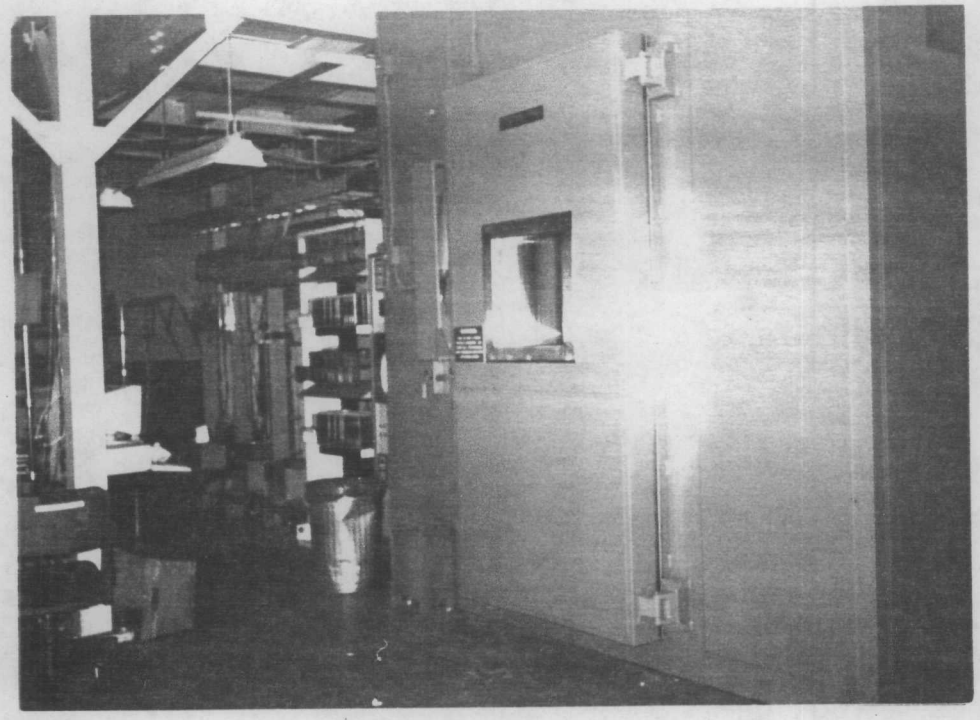
Photograph No. 27 Location: SWMU 18
Orientation: East Date: 12/16/92
Description: Tool Room Used Oil Accumulation Area (SWMU 18) containing one partially-filled 55-gallon used oil drum



Photograph No. 28 Location: SWMU 19
Orientation: Southeast Date: 12/16/92
Description: Location of Original Container Storage Area (SWMU 19); a building has been constructed over a portion of this unit



Photograph No. 29 Location: SWMU 20
Orientation: South Date: 12/16/92
Description: Former Waste Cyanide and Acid Storage Area (SWMU 20); located behind green grates, which cover a portion of SWMU 1



Photograph No. 30 Location: SWMU 21
Orientation: Southwest Date: 12/16/92
Description: Location of Former Waste Ammonia Etching Solution Tank (SWMU 21) in manufacturing building

ATTACHMENT C
VISUAL SITE INSPECTION FIELD NOTES

(102)

- GRAPHITE, KEVLAR, FIBERGLASS USED TO IMPREGNATE MATERIALS
- WASTE OIL NOT NORMALLY GENERATED - ONCE IN 6 YEARS, WASTE OIL FROM AIR COMPRESSOR

1305 - BACK FOR WRAP-UP MEETING

1330 PRC OFF SITE

HEXCEL

A. William Nosil
Corporate Environmental
Engineering Manager

11555 Dublin Blvd., Dublin, CA 94568, (510) 828 4209, Ext. 4482
FAX (510) 829-2487

G. WM. MOUNT
Plant Manager

X315

515 LAWRENCE STREET
LANCASTER, OHIO 43130

TELEPHONE (614) 653-1840
FAX (614) 653-0128

(103)

TUESDAY, DEC. 15, 1992
PT. CLOUDY, COOL, ≈40°F

0920 PRC ARRIVES AT AT&T, P. FLAHERTY & K. KRUK MET WITH DALE HOWELL & BARBARA THOMSON OF AT&T

- MANUFACTURES SWITCHES & APPARATUS USED BY AT&T, COMPUTERIZED SYSTEMS, CIRCUIT BOARDS

- PLATING WILL BE GOING IN 1993 P.F. 12/15/92 ~~1985~~, - (FOR "OLD" APPARATUS)

- BELL LABS IS SOFTWARE DEVELOPMENT - COMPUTERIZED SOFTWARE, SEPARATE ENTITY, BELL LABS GETS THEIR MONEY FROM

P. Flaherty 12/15/92

(104)

AT ; T

- 3 SYSTEMS
  SWITCHING SYSTEMS - PLATING, PIECE PART FABRICATION, MOLDING, & DEGREASER
- BELL LABS USED TO HAVE A PLATING FACILITY UNTIL 1990
- CHEM WASTE WAS HIRED TO MOVE BELL LAB OUT
- DID MAKE OWN CIRCUIT BOARDS W/ GOLD PLATING UNTIL ≈ 1986, DO NOT MAKE ANY CIRCUIT BOARDS
  TYPES OF PLATING:
  (1) ACID-TIN BATH, (2) AMID. NICKEL-

P Flaherty 12/18/92

(105)

(3) CHROME PLATER, HOIST MACHINE PLATES COPPER, NICKEL AND ZINC
- USED TO DO GOLD PLATING, COPPER ETCHING, ALUMINUM ETCHING
  UNTIL ↓ ≈ 1986 UNTIL ↓ ≈ 1983
- PROD. STARTED IN 1965
- BEGAN OPERATIONS IN 1959
  WAS WESTERN ELECTRIC,
  IN 1982, GOV'T. REQUIRED WEST. ELECTRIC TO SPLIT UP
  → AT ; T NETWORK SYSTEMS, BECAME
  → AT ; T ABOUT 3 YEARS AGO
- "WEST. ELECTRIC" IS TRADE MARK OF AT ; T
- OPERATIONS WERE THE SAME FROM WEST. ELEC TO AT ; T

P Flaherty 12/18/92

- BELL TELEPHONE LABORATORY CAME IN 1959
- 6200 EMPLOYEES (W/ BELL LABS INCLUDED)
- PRODUCTION - (NON WIRE GERGANG)
- CABLE FORMING: MAKING WIRE HARNESS, TO CONNECT WAFER SWITCH CABLE
- WIRING; W/ BLUEPRINT CONNECT WIRES
- TESTING: TESTING RELAYS, RUN ELECTRIC CURRENT THROUGH RELAYS, → RELAYS COMPOSE A SWITCH

P. F. Doherty
Jan. 5, 1962

- METAL PIECE PART FABRICATION PUNCH PRESS → GENERATES SCRAP METAL, GOES TO LOCAL SMELTER i.e. MASTER RE-USE METALS, PLAIN COLD-ROLLED STEEL SCHLUNGER (SUCH FROM PUNCH PRESS)
- PRINTED WIRING BOARD INSERTION: MACHINE THAT PUTS RESISTORS SUCH, DIODES ONTO CIRCUIT BOARD
- TEST SET CONSTRUCTION: MAKE CABINET, PROGRAMMED CABINET TO TEST SWITCHES THAT FAILED (AT T) SELL TO THEM
- TUMBLING (METAL PARTS) - OLD

P. Doherty

SWITCHING APPARATUS, RINSE WATER GENERATED, TRI-IODIDE PHOSPHATE, TAKING BURRS OFF METAL PIECE PARTS

- ELECTROCHEMICAL GRINDING, SALT SOLUTION USED, CURRENT RUN THROUGH (2 UNITS-APPARATUS), REMAINS ARE GRINDED, WATER GOES TO WASTE TREATMENT

WASTE GENERATING PROCESS:

[A.]

(1.) - ELECTRO PLATING -

① ACID-TIN BATH (200-gal. TANK) STEEL, RUBBER LINED, RINSE WATER

~~② NICKEL-TIN BATH~~ - GOES TO TWO TANKS 300-gal. TANKS

(1.) STAINLESS?

(2.) STEEL, RUBBER COATED?

1ST RINSE TANK (300-gal.) STEEL, RUBBER LINED

2ND UNLOADER TANK, HOSE RINSE BUCKETS, 2 BUCKETS COLLECT PARTS

- WASTE GOES TO HOLD PIPE SYSTEM THAT LEADS TO WASTE TREATMENT, FROM BOTH TANKS ACID & TIN WASTE INTO WATER TREATMENT

- STARTED PROD. IN 1959 (PROD.), UNTIL APPROX. SEPT. 1992

(2.) NICKEL-CHROME PLATER - OVAL MACHINE, AUTOMATIC, PLATING IN CAUSTIC DEP.

(110)

1ST CAUSTIC CLEAN, 2ND RINSE, 1ST ACID, 2ND RINSE, 3RD ACID, 4TH CLEAN, RINSE, ACID, CLEAN, RINSE → TIGHT PLATING NICKEL P.E. ~~OR CHROME~~ →

3 RINSES → TIGHT CHROME PLATING

- ENDS UP IN DILUTE ACID/ ALKALI SYSTEM ↔ WASTE TREATMENT SYSTEM

- 2 RINSES : DIP & SPRAY, 3RD RINSE → INTO HOT-AIR OVEN

- CHROME TREATED DIFFERENTLY CHROME, ITS OWN DRAIN LINE INTO WASTE WATER TREATMENT SYSTEM LARGE OPEN TANK,

- STARTED APPROX. IN 1959 CURRENTLY OPERATING

P. Flaherty 12/15/92

(111)

- WASTE TREATING TO BE GONE IN 1993, ALL PLATING TO BE GONE IN 1993

- 60,000 TO 80,000 GALS/DAY WASTE WATER TREATED, SENT OUT TUMBLING & ELECTROPLATING WASTES

(3) PROGRAMMED HOIST MACHINE PLATES COPPER, NICKEL, & ZINC

- CAUSTIC CLEANING ACID, DICHROMATE RINSE (TO DIP ZINC IN), TIGHT PLATING OPERATIONS

40 TANKS TOGETHER

- Cu & Zn - CYANIDE - INTO CYANIDE SYSTEM

- Ni — GOES W/ HCl'S, (IT'S SOMEWHAT ACIDIC)

P. Flaherty 12/15/92

(112)

- STOPPED OPERATIONS IN 1986 - (TOOK OUT STEGNO ZINC PLATER) OBLIQUE BARREL PLATER, USED FOR SMALLER PIECE PARTS

- STRICTLY USED FOR ZINC PLATING

- ALSO IN 1986 2 ZINC PLATERS WERE REMOVED, & NICKEL/CHROME PLATING MACHINE (≈ SAME SIZE AS Ni/CHROME TANK CURRENTLY USED)

- ALL TANKS WILL BE STEEL/RUBBER LINED

- NITRIC TANK HE BELIEVES IS STAINLESS STEEL

P. Flaherty 7/11/92

(113)

6. MOLDING - INJECTION MOLDING IN "GUN" MODULE & HEAT FORMS A PART, PLASTIC PARTS, SEVERAL MACHINES WASTE GENERATED, PLASTICS, NYLON CAN BE RECYCLED

- PLASTICS GO TO REG. TRASH (NON HAZ.)

P.F. 12/15/92

- MOLDING WILL BE DONE IN 1993 ~~1992~~

- WASTE OIL GEN. FROM MOLDING OPERATIONS

- PARTS MANUF. FOR "OLD" NOTIFIER SYSTEM

- WASTE OIL - HYDRAULIC OIL ACTUATED MACHINE ≈ 6 DRUMS WASTE OIL ON WASTE PAD - GOES TO S-K, FOR FUEL BLENDING; OIL TO

P. Flaherty

NEW CASTLE, KY FACILITY =
MUC. FLAMMABLE MUC. UNFLAMMABLE
- FREON, TCE, METHYLENE, 111-TCE
ARE TO HEBRON OHIO SK
FACILITY

- HAVE 2 LARGE ROLL OFF
BOXES A DAY (40 CU. YDS. EACH)
FOR GEN. DEBRIS
- MOVING SINCE 1959

E. DEGREASER + CONVEYOR
IN IT, LIQUID → LIQUID →
HOT VAPOR, TCE METHYLENE,
- OFF OF STILL - DEGREASER
WASTE, 5 DRUMS / 4 MONTHS
≈ SINCE MID 60S
- USED TO HAVE 4 OR 5 OF
THESE UNITS

P. Flaherty 12/15/92

- 1 BULK TANK, PUMP CLEAN
TCE TO STILL, WASTE FROM
STILL TO 5-K (HEBRON)
- ~~1200 P.F.~~ 1400 GALS.

D. PIECE PART CLEANING
P.F. CLEANER
- VAPOR ~~DEGREASER~~ - FREON, TMS
USED TO CLEAN DIRT OR SOLDER
FLUX (SOLDER FLUX TAKEN OFF
WAVE YOU ~~ADD~~ P.F. 12/15/92 TO SOLDER) -
- IN PART #26 (ON DIAGRAM)
- PUMP INTO DRUM ≈ 5 DRUMS /
4 MONTHS

- POSS. 2 UNITS, USED TO HAVE
6 OR 7, STOPPED USING WITHIN
LAST YEAR + 1/2. - EACH REQUIRED AN
AIR PERMIT

- PERCHLOROETHYLENE NO LONGER

P. Flaherty 12/15/92

GENERATED HERE, LAST STAMP IN JULY, 1992, WAS USED IN ADDITIONAL (REMOVED) CLEANERS

- 2ND VAPOR ~~DEGREASER~~ CLEANER P.F. MAY USE 111 TCA, IN PART #40 ON DIAGRAM
- STORED IN 2 P.F. CSA
- OTHER CSA - FOR CLEANERS + ACIDS, OUTDOORS, NO ROOF, BY WW TREATMENT AREA (INACTIVE)
- WASTE FREON TUS-K, HEERON FACILITY
- HAND CLEANING OPERATIONS, SCRUB W/ TOOTHBRUSH ~~NONE~~ P.F. 12/15/92 SMALL CAN, INTO FLAMMABLE WASTE SMALL CAN, TO SAA SOLVENT AREA TO CSA (J38) P.F. 12/15/92

P. Flaherty 1-4-93

- E. STAMP CLEANING
- STAMPS USED TO DATE ITEMS CLEANED W/ FREON, 111; SIMILAR PROCESS TO HAND CLEANING PROCESS, NO LONGER USE FREON P.F. ~~OR~~ 111 BUTYL CARBITOL, OR BUTYL CELLOSOLVE? INSTEAD MAY BE USING 111 TO STAMP CLEAN?; MAY BE USING FREON
- APPROX. 15-20 STAMP CLEANING AREAS W/ 2 GAL CANS → WHEN FULL, TO J-38 STORE ROOM, INTO NON-FLAMMABLE STORAGE (SAA)
→ SAA 2 DRUMS: 1 FLAMMABLE (ALCOHOL, MIN. SPIRITS, ETHANOL, ISOPROPYL,) 1 NON-FLAMMABLE FREON 111, BUTYL

P. Flaherty

(118)

- STARTED WHEN OPERATION STARTED, 1959

F. WAVE SOLDERING:

CIRCUIT BOARD W/ FLUX APPLIED

FLUX → SOLDERING → PCBC (SINCE ~2 YRS. AGO)

NOW: (NO-CLEAN FLUX)

ALCOHOL → SOLDERING →

60% TIN

40% LEAD

WASTE: DROSS, SKIMMED FROM SOLDER POT

- SOLDER USED TO BE RECYCLED, NOW STORED AS HAZ. WASTE
- NOW SENDS SOLDER WASTE TO ECI?? IN CALIF.

- DROSS WASTE

P. Flaherty

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- JUST STARTED SHIPPING SOLDER WASTE, 1 SHIPMENT MADE IN 1991

- 6 DRUMS TO GO NOW

P.F. 1/24/92

- 1 2 gal. CAN; TO ADJACENT 55-gal. DRUM; TO CSA

- 3 SOLDERING AREAS (SOLDER POTS) (2 MOLTEN TIN LEAD, P.F. 1 PASTE AREA)

- OXIDIZED TIN LEAD IS A SOLDER FLUX

G. HAND SOLDERING - DID USE FREON, NOW USE ALCOHOL

P.F. (SOMETIMES DON'T NEED TO CLEAN JUST FLUX THEN SOLDER)

P. Flaherty 1/5/92

P.F. 12/15/92 WERE USED

- WHEN WASTE FREON, + 111, TRANSFERRED FROM 1/2 gal CANS TO J-138 P.F. 12/15/92

FREON UNTIL ~1990, 12/15/92 P.F. [redacted]

THEN 111; GOTTEN RID OF 111 IN THIS YEAR

- P.F. 12/15/92 WAVE SOLDERING OPERATION STARTED 15 YEARS AGO

- HAND SOLDERING SINCE BEGINNING, ~1959

H. TOOLROOM - MILLING MACHINES, GRINDERS ARE CLEANED

- TANK DEGREASER - 12 gal. STEEL, CLEAN. IN TANK, PUMPED CLEAN INTO DRUM.

- PUMP FROM TANK INTO 55 gal. P. Flaherty

DRUMS

- 111 IS IN TANK

- SINCE BEGINNING: 1959

- KEEP 1 DRUM ADJ. TO TANK: ~ 1 DRUM EVERY 4 MONTHS

- WILL REPLACE W/ BUTYL

I. - POWER HOUSE

- GENERATE STEAM IS, MAKING HEAT, FOR HOT WATER, FOR CLEANING

- AIR COMPRESSORS GENERATE OIL

- 111 USED TO CLEAN COMPONENTS ON CHILLER FOR AIR CONDITIONING P. Flaherty 1992

- WASTE OIL GEN. ~2 DRUMS/6 MOS.
- GOES TO S-K
- 111 TCA ONLY GEN. TWICE SINCE 1970 (FOR CLEANING OF AC)
- WASTE OIL GEN. SINCE OPS. BEGAN - 1959; STORED IN CSA (55-gal DRUMS)
  - SOMETIMES 1 55-gal DRUM IN THE AREA FOR WASTE OIL ACCUM.
- WATER IN POWER HOUSE SUPPLIED BY CITY; - ALL WATER IS SUPPLIED BY CITY
- 3 COOLING TOWERS: 2 CELL & 1 CELL

3 CELL - BOTH FOR REFRIG. UNITS FOR A/C
4 CELL -- PROCESS WATER USED TO COOL MOLDING MACHINES

- BLOWDOWN FROM COOLING TOWERS GOES TO CITY OF COLUMBUS STORM SEWER
- DO HAVE NPDES PERMIT FOR DISCHARGES FROM DRINKING FOUNTAINS + 5 AC UNITS; P.F. ELIMINATED WENT ~~GOES~~ TO STORM WATER; 3 INTO CLOSED LOOP SYSTEM, NOW - 2 DISCHARGE INTO STORM
- FACILITY STORM WATER GOES OUT INTO POND, INTO STREAM, INTO BIG WALNUT CREEK
- MONITOR ONCE/MONTH; FLOW MONITORING AT 2 LOCATIONS → REPORT PH TO STATE & FEDERAL

- ONLY HAVE 2 NPDES PERMITS

J. MAINTENANCE PAINT BOOTH
- PAINTING OF MISC. ITEMS; DESKS, CABINETS, ETC.
- TOLUENE USED AS THINNER
- GOES AS FLAMMABLE HAZ. WASTE - USE SOLVENT-BASED PAINTS.

- 1 55-gal DRUM (SAA) GOES TO WASTE PAD (CSA)

- ~1 DRUM / 2 MONTHS

- SINCE OPERATIONS BEGAN - 1959, ~10' x 8' BOOTH, HAS EXHAUST SYSTEM

P. Flaherty 1-192

- 96 AIR PERMITS

K. WASTE TREATMENT FACILITY
COMES IN
1. DILUTE ACID & ALKALI (TANK)
2. CHROME (1 TANK)
→ ADD SULFUR DIOXIDE TO, & TREAT HEXAVALENT TO TRIVALENT
3. CYANIDE WASTE TREAT W/ CHLORINE TO BREAK DOWN TO CO_2, W/N, DESTRUCT

3 → 1 2 → 1,
ADD MAGNESIUM PEROXIDE, (MAGADOR NOE) CHROMIUM HYDROXIDE, ZINC HYDROXIDE (ALL HEAVY METALS); 4 TANKS BEFORE CLARIFIER
- ADD POLYMER TO IT, TO PRECIPITATE IN CLARIFIER, WHERE WATER IS EMPTIED TO HOLDING TANK

P Flaherty 1.6.1.192

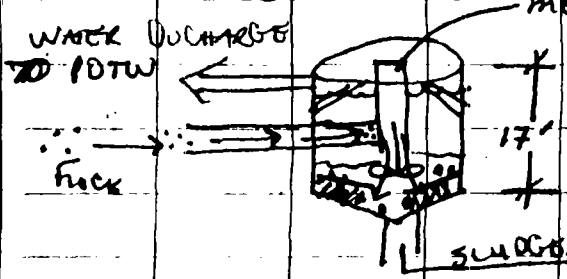
*1 - CATIONIC POLYMER (CHARGE) 1ST TANK TPH

*2 - JUST MIX IT UP 2ND TANK

*3 - " " MIXTURE 3RD TANK

*4 - ADD ANIONIC POLYMER, NaOH 4TH, pH FROM 9 TO 10

→ THEN INTO CLARIFIER, SLUDGE SETTLES OUT



- SLUDGE ACCUMULATES ON BOTTOM, ≈ EVERY 15 MIN., PUMP SLUDGE INTO HOLDING TANK - 20,000 GAL. CONCRETE WITH AN AERATION TANK

- WHEN 7' IN HOLDING TANK, HYDRAULIC FILTER PRESS; COMES OUT ≈ 50% H_2O 50% HEAVY METAL SLUDGE

P. Flaherty

- PUMP, AFTER 7' HIGH TO FILTER PRESS ON 2ND FLOOR

- WATER FROM FILTER PRESS GOES BACK TO STAGE *4

- ALL TANKS EXCEPT CHROME ARE CONC. W/ PVC LINING

- UNDER PRESS, 20 OR 25 CUBIC YARD BOX, STEEL, ROLL-OFF FOOD ≈ 12.5 TONS/SLUDGE

- 1 BOX (12.5 TONS) / MONTH

- CHEM. WASTE MANA. PICKS UP, OUT OF DAYTON TO LANDFILL IN FT. WAYNE, IN

- ≈ 75,000 gpd

- CHROME TANK IS CONC. W/ ACID BRICK INSIDE

- CLARIFIER ADDED IN 1971

P. Flaherty
10.

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- 1 CLARIFIER - 90,000 NOT IN USE
- CLARIFIER IN USE IS 140,000-GALLON
- PLATING TANKS NOT DUMPED INTO WWT SYSTEM (ROUTINELY)
- CLEAN PLATING TANKS (ALL) ONCE/YEAR
- CHROME WASTE FROM TANK: 1 DRUM/YEAR
- ZINC WASTE - 2 DRUMS/YEAR
- COPPER DOES NOT SLUDGE OUT
- ZINC & COPPER FILTERED CONTINUOUSLY IN OPERATION

P. Flaherty 1-192

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- FILTERS FROM TANK, 2 TIMES @ /YEAR, 3-4 DRUMS/YEAR, HERITAGE IN INDY
- PITS UNDER TANKS FORM "CRUD", i.e. SODIUM HYDROX. RESIDUE (CAUSTIC TANKS)
- ALL TANKS HAVE PITS, W/ AUTOMATIC PUMPING SYSTEMS TO PUMP TO WWT, IF STILL OPERATES
- "CRUD" CLEANED FROM PITS ONCE/YEAR
- DURING SHUTDOWN (2 WEEKS IN AUG./SEPT.) DO CLEAN-UP OF PITS & TANKS, HERITAGE TAKES WASTE

P. Flaherty 1-197

(130)

1440 BREAK FOR LUNCH

1545 RETURN TO FACILITY TO CONTINUE INSPECTION

- WASTES GEN BY AT&T BELL LAB. IS HANDLED BY AT&T
  - CHEMICAL LABS CEASED IN 1990, BY CHEM WASTE MANAGEMENT
- i.e. PLATING CHEMICALS, WASTE ACIDS, ~~KEAT~~ P.F. WENT TO WASTE WATER TREATMENT F.S. FAB UNIT
  - ~~NOT SURE WHERE THIS SHOULD~~ P.F. 12/5/92
- METALLURGICAL, ALLOYS PLATING, ETC. - LAB BEGAN IN 1959
- FOR 2 MONTHS IN 1990, COULD NOT PUMP SLUDGE FROM CLARIFIER, STORED IN ROLL OFF BOXES NEAR WWT - RELEASE OF FAB SLUDGE TO SOIL.

D Flaherty

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- SOIL REMOVED OEPA OVERSEEN TIRE CLEANUP
- NO OTHER SPILLS OR RELEASES FROM THE FACILITY
- NEVER HAD USTs, NONE NOW — WASTE P.F. 12/5/92
- DID HAVE 2 NO. 2 FUEL OIL USTs, REMOVED IN 1988 12,000-gal 3,000-gal
- DID HAVE 1 UNLEADED, AND 1 LEADED GAS USTs - YANKED IN 1986 - OEPA NOT HERE; NO SAMPLING → NO LEAKS
- 2 37500 - ABOVEGROUND TANKS HAD CLAY DIKE INSTALLED

P. Flaherty
1 day

- DURING OIL WELL PERMIT, STATE DID REQUIRE ≈ 3 DUMP TRUCK LOADS ≈ 40 cu. YDS. OF SOIL TO BE REMOVED

- AMMONIA ETCHING SOLUTION 2 TANKS - INSIDE: 1 WATER, 1 VIRGIN, FOIL; ~~COPPER~~ P.J. USED IN PRINTED WIRING BOARDS MANUFACT. PROD. STOPPED USING IN 1986, WHEN GOLD & COPPER ETCHING OPERATIONS STOPPED

- FIBERGLASS TANKS, 8,000-9000 GAL. 1980 - 1986, IN CONC. DIKED AREA; REMOVED

- TOTAL FENCE AROUND PREMISES, 24 HOURS SECURITY

P. Flaherty -192

- BEDFORD LANDFILL, NOW CLOSED, TO NORTH

- CEMETERY FOOT LAWN - TO WEST

- EAST - INDUSTRIAL COMPLEX, WAREHOUSING OPERATIONS, MANY CAN MANUFACTURING COMPANY

- NE - COMMON STEEL DRUMS - RECYCLED DRUMS

- SOUTH, PLAZA, MOUNT CARMEL MEDICAL COMPLEX

- NEAREST RESIDENCE NEAR PLANT, TO SOUTH ≈ 1/4 K.; RESIDENCES ON P.E. CUT + POS. WITHIN 1 mi.

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3 MILE OF HOPE, REDDICK MAY USE ~~G~~ P.F. WELL WATER

P.F. 12/15/92 ~~DO~~ ON-SITE WELL; DO HAVE ON-SITE MONITORING WELLS, 8 TOTAL, ALONG EAST SIDE ~~OF BLDG~~ P.F. 12/15/92, SAMPLE TWICE A YEAR

- BEDROCK ≈ 18', WATER (GW) AT DEPTH OF APPROX. 10',

- PRIOR TO ~~1986~~ 1985 P.F. 12/15/92 STORED WASTE IN CONC. CURBED AREA, NEAR BLDG. 46

- ORIG. PAD ≈ 30' x 40'? CONC. FLOOR, 1'1/2-2' DIKE, OUTDOORS

P. Flaherty, '92

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- PROD. STARTED AT BEGINNING IN 1959

- CYANIDE WASTE, CHROME ACID, } BOTH ENCLOSED BY 6" CURB
- SINCE PROD. 1959
- NOT USED FOR 7 OR 8 YEARS

- DRAIN INTO CHROME SURGE TANK OR CYANIDE TANK, IF THERE IS A RELEASE IN EITHER OF THE 2 AREAS W/ 6" CURBING

- 2 CSAS CLOSED IN 1982:
  - ORIG. AREA NOW UNDER BLDG 35
  - AREA(S) W/ 6" CURBING (STILL IN EXIST.)

P Flaherty

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- FREON NO LONGER USED IN OPERATION, EXCEPT:...
  1 VAPOR DEGLOSER, POTENTIALLY WILL USE FREON, IF NEW MATERIAL DOES NOT WORK ADEQUATELY
  TCA 111 STILL USED...
- TCA 111 IN TOOL ROOM,
- TCA 111 IN VAPOR CLEANER (USED TO BE FREON)

(- TCE DEGREASER IS 1,400-gal.)

1735 PRC OFF SITE

P. Flaherty 12/15/92

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WED. DEC. 16TH, 1992

MILD, ≈45°F

0900 P. FLAHERTY & K. KRUK RETURN TO AT&T, MEET WITH DALE HOWELL

- VAPOR CLEANERS USED FREON, VAPOR CLEANERS THAT ARE NOW REMOVED HAD THEIR OWN ADJACENT 55-gal. DRUMS (SAA)

- 1 VAPOR ~~CLEANER~~ DEGREASER (IDLE NOW), BUT HAS FREON IN IT

P.F. 12/15/92

- OTHER VAPOR DEGREASER HAS BUTYL (NEW ~~PRODUCT~~ CLEANER IN IT)

P.F. 12/15/92

- TCE DEGREASER HAS ITS OWN SAA ADJ. TO IT

- HAND CLEANING - JUST USING ALCOHOL

P Flaherty

- F003 : F005 WASTES ~~ARE~~ P.F. ARE ALCOHOL WASTES, ~~FROM WAVE SOLDERING~~ P.F. O.K. P.F. w/ONLY
; HAND CLEANING OPERATIONS
- NO ALCOHOL WASTE FROM WAVE SOLDERING?

- WASTE OIL IN MOLDING AREA - SAA

- TCA VAPOR DEGREASER SOMETIMES HAS ITS OWN CONTRACT SAA, WASTE DOES NOT GO TO J38
- STAMP CLEANING SWITCHING FROM TCA 111 TO BUTYL CARBITOL STAMP CLEANING
- MARKEM 320 WAS USED PRIOR TO 111 → 111 BEGAN BEING USED WITHIN THE LAST FEW MONTHS
- P.F. ~~+++~~ BUTYL PRODUCT WILL NOT DRY

P. Flaherty

- SOLDER DROSS IS WASTE OF OPERATING SYSTEM

- MARKEM 320 CLEANER IS COMPRISED OF ISOPROPYL ALCOHOL AND ETHYL ACETATE

- BUTYL CELLOSOLVE - ETHYLENE GLYCOL MONOBUTYL ETHER

- BUTYL "CARBITOL" - DIETHYLENE GLYCOL MONOBUTYL ETHER

- 111 IS NON-FLAMMABLE, SO IS BUTYL CELLOSOLVE & BUTYL CARBITOL

- COPPER ETCHING TANK PUMPED DIRECTLY INTO WASTE AMMONIA

P Flaherty

(140)

ETCHING SOLUTION TANK (WHEN TANK WAS REMOVED IN ≈ 1986)

- APPROX. GEN 5 DRUMS/MONTH OF WASTE OIL

- DEGREASERS THAT HAVE BEEN REMOVED: 2 OF THEM REMOVED, BOTH INSTALLED IN 1972, BOTH USED TCE, NO NOTE OF REMOVAL DATE; HE GUESS 1 OUT 3 YEARS AGO ≈1989 OR 1990, OTHER OUT ≈ 15-17 YEARS AGO

- ~~4 OR~~ 5 OR 6 VAPOR CLEANERS WERE REMOVED, IN 1990 OR 1991, ALL USED FREON

- 111 ONLY IN 2 OPERATIONS NOW

- DON'T USE BUTYL CELLOSOLVE IN ~~PRODUCTION~~ 1992

1020

THIS FACILITY ANY LONGER? (CLEANER, DEGREASER)

- GOLD PLATING, COPPER ETCHING OPERATIONS TOOK PLACE FROM 19??

BEGIN FACILITY TOUR

PHOTO #1 - WEST, WAVE SOLDER SAA, 1 gal. BUCKET, STEEL?

PHOTO #2 - N.W. - SAME AS ABOVE PCB LOCATION ON "ORGANIC" DRUM

PHOTO #3 LOCATION OF SOLDER PASTE (SAA) - SOUTH IN CHEMICAL AREA

PHOTO #4 - SOLDER PASTE 55 gal. ~~PRODUCTION~~ FLORIDA

SAA, ON WOODEN PALLET ADJ. TO WAVE SOLDER MACHINE IN COLLIMER EAST

PHOTO #5 - 1 GAL. STEEL PAN ADJ. TO WAVE SOLDER MACHINE IN COLLIMER AREA NOW, ON STEEL TRAY, TILE FLOOR

- NETWORK SYSTEM -

PHOTO #6 - 2 1/2 FULL 1 GAL PANS ADJ. TO SOLDER MACHINE USED TO USE PERC. (EMPTY PAN ON BOTTOM OF CART) - WEST

PHOTO #7 - 1 55 GAL. DRUM OF WASTE SOLDER DROSS - EAST ≈ 20' SOUTH FROM PHOTO #6

P. Flaherty 11.19

PHOTO #8 1 55 GAL. DRUM OF FOOT FROM ON WOODEN PALLET, TILE FLOOR

- PHOTO #9 - LOCATION OF WHERE WASTE 111 TCA WOULD BE STORED (SAA) CURRENTLY NONE ADJACENT TO B & B VAPOR CLEANER IN PART #42, ON STEEL FLOOR

- PHOTO #10 - PROGRAMMED HOIST MACHINE (COPPER, NICKEL, ZINC) SHOWING PIT - DAA, CHROME, ETC.

- CYANIDE HAS ITS OWN PIT,

- PHOTO #11 - NICKEL - CYANIDE PLATER, SHOWING PIT THAT

P. Flaherty

DISCHARGE TO WWT - i.e. DILUTE CAUSTIC, DILUTE ACID, HCl, - EAST

PHOTO #12 - ACID TIN PLATING, (PLATING ON RIGHT, PIPE TO WWT ON LEFT NORTH

+ FLOOR SUMPS ALL DISCHARGE TO WWT

PHOTO #13 - TCE DEGREASER, LOCATION WHERE DRUM SITS IN FRONT OF SAA - "CAN" DRAWS FROM SIDE INTO TANK BELOW GRATE, TANK SIZE ~ 3' x 3.5' x 7.0' - STEEL, CONC. BASE, ADJACENT TO WOOD-BLOCK SURFACE, WEST

P. Flaherty 12/16/92

PHOTO #14 - 2 55 GALLON WASTE OIL DRUMS ON ELEVATED PALLET IN MACHINE AREA - NORTH

PHOTO #15 - DRILLING OPERATIONS IN TOOL ROOM GENERATE WASTE OIL - WASTE OIL SAA - EAST, SAA ALSO USED FOR 111 TCA SAA

PHOTO #16 - 2 PARTS CLEANING UNITS IN TOOL ROOM.
- PHOTO #15 - NORTH ~12 gal., P.E USES 111 TCA

PHOTO #17 - ~12 gal. PARTS CLEANER UNIT IN TOOL ROOM TEST USES 111 TCA; SOMETIMES 55 gal. (SAA) IS ADJ. TO THIS UNIT FOR WASTE 111 TCA - 111 TCA HAS BEEN USED FOR PARTS CLEANING SINCE 1959.

P. Flaherty 12/16/92

UNITS HAVE ONLY BEEN IN THIS
AREA FOR APPROX. 4 YEARS;
USED TO BE LOCATED IN ~~[illegible]~~
P.F. ~~2~~, 3, & 4 OF BLDG. 30,
SINCE 1959 (TOOL ROOM USED TO BE
LOCATED IN PARTS 3 & 4)

-CONTAINER STORAGE AREA -
OUTDOORS, CONCRETE BASE,
DRUMS ON WOODEN PALLETS
FENCED IN

F005 - 1
F003/F005 - 1
F002 - 1, 1, 1, 1, 1
WASTE OIL - 1,1,1,1,1,1,1,1,1,1,3,4,4
(III TCA) → F001 - 1, (TCE - 2); TCE - 3,

*AREA IS CURBED W/ 6" CONCRETE

Flaherty ..92

- WASTE SOLDER DROSS:
6 DRUMS - SOLDER DROSS
1 DRUM - SOLDER PASTE
1 DRUM - PCB WASTE
PCB ~~[illegible]~~ FROM LIGHT BALLAST
IS RECYCLED TO CALIF.

~~[illegible]~~ ≈ 8 IN. DEEP x ≈ 20' LONG,
x ≈ 10" WIDE, AREA IS ROOFED

PHOTO #18 - NE, WASTE DRUMS
IN CSA (NOT INCLUDING SOLDER
WASTE)

PHOTO #19 - NORTH - 7
SOLDER WASTE DRUMS
IN CSA

- HAS SPRINKLER SYSTEM

Flaherty

PHOTO # 20 - LOCATION OF FORMER CSA - SE - FORMER CSA - 40' x 50' - WITH 2' CONC. DIKES AROUND - CONC. BASE, STORED USING AT TIME CURRENT CSA WAS BUILT, ~1982 OR 1983

- NEAR PAINT BOOTH, LOCATION OF PAINT WASTE (SAA), FLOOR DRAIN NEAR UNIT HAS BEEN PLUGGED FOR ABOUT 5 YEARS

- PHOTO # 21 PAINT WASTE SAA CONTAINING F003 FLAM. PAINT WASTE, ONE 55-gal. DRUM

- PHOTO # 22 - WASTE OIL STORAGE IN BOILER HOUSE 5 55-gal DRUMS - 1 FULL, 1 PARTIALLY FULL

P. Flaherty 1992

W/ WASTE OIL, DRAIN IN AREA GOES TO SUMP, SUMP GOES TO P.F. SANITARY SEWER SYSTEM

- LOCATION OF 12 14-CUBIC YARDS ROLL-OFF BOXES THAT RELEASED F006 WASTE SLUDGE IN 1990, SOIL WAS REMOVED, & SO WAS GRAVEL

- PHOTO # 23 - LOCATION OF 1 ROLL-OFF BOX DESCRIBED ABOVE

- PHOTO # 24 - CONCENTRATED WASTE TANKS - 2 CLOSEST ARE HCl, 3RD IS CAUSTIC - NaOH

- PHOTO # 25 - AREA WHERE GRAVEL WAS REMOVED SURROUNDING 2nd F006 ROLL-OFF BOX

P. Flaherty 1992

PHOTO #26 - SOUTH - INACTIVE CSA, 6" DIKE, DRAINS TO CHROME SURGE TANK - USED TO STORE CYANIDE WASTE AND ACID WASTE. CYANIDE HARP DRAINS TO CYANIDE SURGE TANK

PHOTO #27 - WEST TANKS COLLECTING CAUSTIC & ACIDS (DAA); CHROME

PHOTO #28 - SLUDGE (FROM CLARIFIER) HOLDING TANK - 29,000 gal, PHOTO SHOWS PIPES LEADING FROM CLARIFIER INTO TANK

TRENCH NEAR HOLDING TANK PUMPS LIQUIDS IN TO STAGE 1 OF WWTP

Flakity

- 2.1 CU. YD. FILTER PRESS, WITH ROLL-OFF BOX BELOW IT

PHOTO #29 - ~~20~~ P.F. 25 CUBIC YARD STEEL ROLL-OFF BOX - W/ F006 WASTE FILTER CAKE TO ADAMS CENTER IN FT. WAYNE

PHOTO #30 - ROLL-OFF BOX W/ FILTER CAKE IN IT - 25 CU. YDS.

- PHOTO #31 - 1 DRUM (SAA) FOR FLAMMABLES, 1 FOR NON-FLAMMABLES (SAA) IN J38, "OIL HOUSE" NORTH 1 FLAMMABLE DRUM - F005/F005

Flakity

- 1 DRUM FOR NON-FLAMMABLES
FOOT - CONCRETE FLOOR

PHOTO #31 - OUTSIDE OF D58
DOOR LEADING INTO IT IS
EAST

PHOTO #32 - LOCATION OF
FORMER WASTE AMMONIA
XXX SCRUBBING SOLUTION TANK - HAD
W/ CONC. BASE & CONC. DIKE ~ 4' HIGH
- S.W.

1545 FINISH TOUR, BACK TO MR. HOUGH'S OFF
- PASS CLEARANCES - ONE W/
- FREON IN IT - INSTALLED IN 1981
- ONE OTHER - TAKEN OUT IN JAN 1992 -
INSTALLED IN 1975 (FREON)
- INSTALLED IN MAY 1992 OUT IN 1990 & '91
(FREON)

P. Flaherty 12/14/92

- ONE OUT IN MAY - 1992 (FREON TAKEN)
INSTALLED IN 1987

- ALL COOLER DRAINS WERE
SENT TO WWT.

1620 PRC OFF SITE

P. Flaherty
12/14/92

ATTACHMENT D
GROUND-WATER SAMPLING RESULTS

GROUND-WATER SAMPLING RESULTS

Results in milligram/liter

	Parameter	Sample Collected 04/18/84	Sample Collected 06/11/84	Sample Collected 09/12/84	Sample Collected 12/11/84
Monitoring well (MW)-1[1] (upgradient)	PCE	[2]ND	[3]ND/ND	ND/ND	ND/-[4]
	TCE	ND	ND/ND	ND/ND	ND/-
	1,1,1-TCA	ND	ND/ND	ND/ND	ND/-
MW-2	PCE	ND/0.67	0.49/0.28	ND/0.53	0.31/-
	TCE	1.4/1.92	0.80/0.38	0.53/0.70	0.63/-
	1,1,1-TCA	15.0/17.43	13.0/11.2	11/12.25	14.0/-
MW-3 (South of boiler house)	PCE	0.032/0.040	0.058/0.030	0.041/0.060	0.026/-
	TCE	0.034/0.040	0.044/0.030	0.052/0.050	0.037/-
	1,1,1-TCA	0.140/0.150	0.230/0.180	0.250/0.280	0.140/-
MW-4	PCE	ND/ND	ND/ND	ND/ND	ND/-
	TCE	ND/ND	ND/ND	ND/ND	ND/-
	1,1,1-TCA	ND/ND	ND/ND	ND/ND	ND/-
MW-5	PCE	ND	ND/0.003	ND/ND	ND/-
	TCE	0.005	ND/0.020	ND/ND	0.004/-
	1,1,1-TCA	0.0009	ND/0.004	ND/ND	0.010/-

GROUND-WATER SAMPLING RESULTS (Continued)

	Parameter	Sample Collected 04/18/84	Sample Collected 06/11/84	Sample Collected 09/12/84	Sample Collected 12/11/84
Collection Drain	PCE	1.6/7.48	4.1/6.9	4.1/5.38	2.0/-
	TCE	1.4/4.74	3.4/4.6	3.3/2.99	1.8/-
	1,1,1-TCA	8.8/2.90	25/31.4	21/20.97	14/-

Note:

[1] Available information does not specify the location of monitoring wells

[2] ND = Not detected

[3] Samples collected by Burgess and Niple, Ltd./Sample collected by AT&T

[4] - = Analysis not performed

Source: B&N, 1986

Table 2

Groundwater Quality

Results in mg/l

Parameter	Date/Location T.D. 10/11/82	T.D. 10/19/82	T.D. 10/27/82	T.D. 12/8/82	T.D. 4/19/83	T.D. 5/2/83	T.D. 5/25/83	B&N T.D. 7/29/83	W.E. T.D. 7/29/83
1,1,1-trichloroethane					19.2	17.4	21	5.4	15.2
Trichloroethylene	5-6	5.2	11.4	14.2	4.4	3.8	4.8	1.1	3.1
Perchloroethylene	2.0	1.7	9.6	13.1	4.9	3.9	3.8	<0.8	1.4
Toluene	0.1	0.09	0.2	0.3					
TOC								40	
COD								52	
Conductivity, umhos								1,000	
pH, S.U.	7.05							8.4	
Hardness		583							
Chloride	320								
Sulfate	17								
Chromium, Hexavalent	0.02								

T.D. - Toe drain discharging to sump is collection drain in boiler house

24" SP - 24-inch standpipe

3" SP - 3-inch standpipe

S.O. - Sanitary outfall

FAEP - Former alcohol evaporation pond

N.D. - Not detected

B&N - Collected and analyzed by Burgess & Niple, Limited

W.E. - Collected by Burgess & Niple, Limited; analyzed by Western Electric

Note: Unless otherwise indicated, all samples were collected and analyzed by Western Electric.

SOURCE: B&N, 1983

Table 2 (continued)

Parameter	T.D. 8/22/83	T.D. 8/22/83	B&N T.D. 9/15/83	W.E. T.D. 9/15/83	24" SP 5/9/83	B&N 24" SP 9/15/83	W.E. 24" SP 9/15/83	3" SP 5/9/83	SO 9/15/83	B&N FAEP 7/29/83
1,1,1-trichloroethane	20.9	15.0	13.9	37.4	N D.	.075	N.D.	28.8	0.139	
Trichloroethylene	2.7	2.1	2.9	6.6	N.D.	<.010	N.D.	22.8	0.058	
Perchloroethylene	1.6	3.6	2.9	10.4	N.D.	<.010	N.D.	0.04	0.034	
Toluene										
TOC			28			16				
COD			18			6				1,200
Conductivity, umhos			3,500			1,830				1,600
pH, S.U.			7.7			7.5				5.6
Hardness										
Chloride										
Sulfate										
Chromium, Hexavalent										